Fifty Years A Surgeon

Robert J. Morris

Senior
Citizens
Center
Marshalltown, Iowa

Digitized by the Internet Archive
in 2010

http://www.archive.org/details/fiftyyearssurgeo00morr

FIFTY YEARS
A SURGEON

DR. ROBERT T. MORRIS

FIFTY YEARS
A SURGEON

By

ROBERT T. MORRIS
M.D.

Frontispiece

E. P. DUTTON & CO., INC.
New York
1935

FIFTY YEARS A SURGEON, COPYRIGHT, 1935 BY E. P. DUTTON & CO., INC. :: ALL RIGHTS RESERVED :: PRINTED IN U. S. A.

First Printing.....January 1935
Second Printing.....January 1935
Third Printing.....March 1935
Fourth Printing.....March 1935
Fifth Printing.....March 1935
Sixth Printing.....April 1935
Seventh Printing.....April 1935
Eighth Printing.....April 1935

The Author wishes to acknowledge his indebtedness to
his sister, EMILY E. MORRIS, for her assistance
in the preparation of this manuscript.

INTRODUCTION

This book presents in an autobiographic manner the experiences of one surgeon during the past fifty years—the most eventful half-century of surgical history. It is the kind of account which I would like to read concerning colleagues who have been endeavoring, as we all must, to keep pace with these revolutionary changes; but it is not written for my contemporaries. Rather, it is aimed to interest the younger medical generation, internes and medical students, and to give the public an insight into the intimate problems of physicians and surgeons of today.

Changes that amount to a revolution in medicine as a whole date back little more than fifty years to include among their earlier moving spirits Pasteur, Virchow, Ludwig, Cohnheim, Hueppe, Fluegge, Neisser, Rosenbach, Roux, Calmette, Koch and Ehrlich, most of whom are now gone. All of these men who were letting down the bars and opening the fields of a new era in civilization were looked upon as being willful disturbers of the peace, intent upon foisting fanciful theories upon a so-called safe and sane audience of savants. It seems unlikely that the fortune to witness such momentous events may ever again belong to any one doctor's lifetime—yet who can tell? Carrel is already growing living tissue outside of the body in culture fluid, and Crile has made a lifelike

cell. Immunology is taking us into chemical reactions and reverberations between microbes, body cells, toxins and antibodies in a way that shakes the very foundations of my medical vocabulary. Research workers are crowding around filterable viruses like miners about new placer deposits and vitamins already belong to history that seems like something ancient. Endocrinology looms large.

Paré in the preface to his work on surgery in 1582 said in effect that, excepting unimportant details, nothing more was to be added to the science and art of surgery. Just three hundred years later Dr. Samuel D. Gross as president of the American Surgical Society made a similar statement: "All avenues of approach to surgery have been investigated." Nothing was left for surgeons of the future beyond acquiring what was already known and perfecting their technic.

Since the time of these schoolgirl prophecies made by the greatest men of their day, two lively young eras in surgery have dashed up the steps, pressed a button and turned the light on things about which Paré or Gross had not even dreamed.

Were I to return to Earth fifty years from now, bringing back my present stock of knowledge, doctors would not understand my language nor would I catch the drift of their conversation at medical society meetings.

In this book, reference to appendicitis preponderates, out of proportion to the importance of this subject in surgery. I have used it as a sort of text, because I happened to be among the first surgeons to enter into a thorough investigation of the subject, and it then came to include much of my practice.

CONTENTS

CHAPTER		PAGE
	INTRODUCTION	7
I.	YOUTH AND THE CALL TO MEDICINE	13
II.	MEDICAL SCHOOL OF THE EIGHTIES	28
III.	INTERNING AT BELLEVUE	39
IV.	ANTISEPSIS ENTERS	57
V.	TECHNIC ADVANCES	73
VI.	HOSPITALS BECOME RECOGNIZED AND GROW	83
VII.	THE DOCTOR OF THE EIGHTIES	95
VIII.	I DECIDE TO SPECIALIZE	108
IX.	I PRACTICE SURGERY	126
X.	TEACHING	144
XI.	THE FOURTH ERA IN SURGERY	149
XII.	APPENDICITIS	183
XIII.	EXPERIMENTAL WORK	202
XIV.	GLAND GRAFTING	211
XV.	THE GENERAL PRACTITIONER	225
XVI.	OSTEOPATHY	240
XVII.	FADS AND CURES	250

CONTENTS

CHAPTER		PAGE
XVIII.	PSYCHOANALYSIS AND METAPHYSICS	270
XIX.	SEX AND BIRTH CONTROL	288
XX.	PROFESSIONAL JEALOUSIES	297
XXI.	FEE-SPLITTING	301
XXII.	THE SURGEON'S FEE	307
XXIII.	THE RED GODS	328
XXIV.	THE LONG STILLWATER	345

FIFTY YEARS
A SURGEON

CHAPTER I

YOUTH AND THE CALL TO MEDICINE

IN ORANGE, New Jersey, there is a picturesque old stone church with mossy ivy-covered walls. Over the doorway is an inscription stating that the ancient edifice was erected in 1857—the year in which I was born! My father was a lawyer by profession, Judge of the Probate Court, and later Governor of the State of Connecticut. He enjoyed everything that his children enjoyed. He permitted us to take as long a course in education as might be desired, stipulating that we were to be prepared for self-support in the end. Like most other upright members of the liberal professions, his financial resources were moderate, and I have never been able to escape from at least a part of that tradition.

My mother, a gentle and retiring person, wrote stories and articles which she published under pen names, but her real occupation was that of educating her six children. I being the eldest, had to serve for experimental purposes—needing to be done over again, so to speak.

My earliest years were lived in New Haven where a great university was exerting pervasive influence upon the atmosphere of the whole town. Our home was in a suburb known as Westville, surrounded by open fields and big woods. Up the road a bit a small cold trout stream made its way through shaky bogs. Raccoons, muskrats, and

mink left tracks over sand-bars. Fringed gentians and cranberries grew in profusion where "improvement" has now placed a dam. The little brook ran into West River where there were larger trout. And here there were black ducks and whistlers to be flushed from out the button bushes and cattails.

Buttercups and bobolinks just outside the west windows interrupted studies and concentration. One evening, when I was supposed to be deep in study, my father found me gazing abstractedly toward an old print which was hanging on the wall.

"See here, my boy," he said, "your thoughts are somewhere far away in the woods and not upon your arithmetic at all."

"Oh, no, Father," said I, "I was just looking at that picture of the mink coming out of the convent." The legend endured because of its appropriateness.

The schoolhouse at Westville was the traditional little old red schoolhouse, save that it was painted white. It stood on the corner of a woodlot, and our teachers often sent recalcitrant boys out to cut their own birch rods for a whipping. On one such occasion the guilty one inserted the wooden cover of his Webster's spelling book inside his trousers, but contact with the birch rod gave out a strange report and his strategy failed.

At our next home on Prospect Street in New Haven the garden was surrounded on three sides by woods, noisy with gray squirrels. I could start out after woodcock and quail in the cornstalks at the foot of our garden, follow a series of moist swales all the way to East Rock and home again on the eastern slope with absolute certainty of finding birds in season. Sometimes there were ruffed grouse or wild pigeons—and rabbits always.

On Friday evenings in the autumn, hunters gathered at Tuttle's Gun Store at Broadway and Elm Street to discuss plans for Saturday's regular "line shoot" for sea ducks on the Sound at Mansfield's. I recall distinctly one of these evenings with prospects for absolutely perfect duck weather and boats in line for next day, when in my heart I knew I should study. I told the fellows that it would be impossible for me to go, but just as I was leaving the store, Nickey caught me by the arm and began to whistle the sound of the wings of a sea duck. I whistled it all the way home, varying the tone to fit the wings of a scoter, a broadbill, or a goldeneye.

Next morning, I arose very early and was getting on famously with my calculus when through an opened window I heard a muffled "Bunk," followed shortly by another "Bunk!" and then suddenly, "Bunk! Bunk! Bunk! Bunk!" Four shots together! That was too much. I slammed my books shut, grabbed shooting outfit from the closet, changed clothes so quickly that I tore my trousers with my heel, and ran all the way down to East Haven River, late but happy. I was just in time to drop a couple of white wing scoters that tried to round the end of the line where I had hurriedly anchored my boat. My father, who had tried to stop me for breakfast, said he might as well have tried to stop a whirlwind. There are times when food is a secondary matter to a boy, and that is saying much.

Boarding-school days and later days at Hopkins Grammar School in New Haven were days of mischief and sport. There were adventurous hours spent in collecting eggs from the nests of red-tailed hawks and Cooper's hawks, high in some big tree. One day at Wiggin's boarding school in Nassau, N. Y., I sneaked out of the dormi-

tory in my best Sunday clothes to practice pole vaulting across a stream, and ended with my pole stuck deep in the mud and my Sunday clothes and me helplessly suspended in midstream. There was the day when I caught a small black snake at recess, tucked him with some difficulty into my side pocket and released him in the classroom, causing several modest girls to jump to the tops of their desks with a show of ankles. Ankles were kept in the safe in those days.

Almost anything in motion gave us some kind of an idea. One autumn a mean old farmer who lived near the school put a cross bull in his apple orchard to keep the boys out. Finding the schoolmaster's red bandana handkerchief fluttering on the clothesline, we soon made the apple orchard safe for Democracy with equal opportunity for all. With the bandana in hand, we took a stand in front of a big hickory tree in the orchard and waved it gayly at the bull until he came roaring toward us, head down and tail in air. Having made certain of his charge, we nimbly stepped aside and the infuriated bull hit the hickory tree a blow which must have shaken China from its feet. When the bull recovered from his daze it took a good deal of teasing to persuade him to come at us once more.

At Hopkins Grammar School we had all the games of the day. A baseball match with a score of 22 to 26 might have been the other way round, except for two or three "ifs." In football the kicking and punting were confined largely to the ball. We knew nothing of the flying wedge that subsequently elevated this game to social position and made it an advertising medium for colleges. Some of us reading history learned that a curious game called golf

had been invented in Holland and was being played somewhere else in Europe, possibly in Scotland.

The tone of Hopkins, however, was one of earnest scholarship; the traditional family scholarship of Whitneys, Hoppins, Thachers and Woolseys, but the indifferent students as well as the outstanding ones have since made notable careers for themselves in the professions and in business. It makes one feel that excellent class work depends upon a type of mind rather than upon actual ability in general. Some of my friends who became postgraduates from Oxford and Cambridge have never been quite comfortable in life, while others who failed in college entrance examinations have been happy in lives of demonstrable service. The most stable citizenship may go with scholarship but notable careers may reward those who do not fit into conventional curricula. Scholarship cultivates doubt. The logical end of doubt is poise and then pause. My own class marks at school ranged on both sides of the equator, varying with the fishing and shooting seasons.

Many of my classmates at Hopkins, including both the studious and the indifferent, have become prominent men of affairs. E. M. House became the most frequently discussed diplomatist in the world. Even in school days his enthusiasms ran to studies of economics and politics. He carried a copy of de Tocqueville in preference to a baseball bat. Whenever there was a row among the students, Ed would "mysteriously" appear from nowhere and in a few minutes everybody would be shaking hands. Today, Americans are somewhat mystified by Ed House because they cannot understand why such a man, of independent income, should like to be useful when so many other op-

portunities are open to him. Europeans understand him easily.

T. B. Osborne, a constant companion of woods and fields during school days, gained international fame for his classical work in vegetable proteins and vitamins. He became a research associate of the Carnegie Institute at Washington and was one of the pioneers in American biochemistry. A. S. Van de Graff became a professor of Law at the University of Alabama, and later president of the Bar of the State of Alabama. George Woolsey became a professor in surgery, first at New York University Medical School and later at Cornell. W. B. Cabot, civil engineer, has been a pioneer in the study of the Nascopi Indians, and has explored the interior of Labrador.

While at school in New Haven I planned to go on to a college course in biology with the hope that it would carry me toward some Government position in Washington, although in those days of political patronage few of the positions at Washington were open to anybody who knew anything beyond the right way of voting. After consulting various catalogs, the best course in biology seemed to be that conducted by Wilder and Gage at Cornell.

Dr. Burt G. Wilder (Professor of Biology) had been trained under Asa Gray, Oliver Wendell Holmes, Jeffries Wyman and Louis Agassiz at Harvard and had been a teacher at Penikese under Agassiz. Gage was gaining wide recognition as a teacher in work with the microscope —something of a mysteriously inspiring novelty in college courses. Anyone who could stain tissues so that they might be told apart and who could get an oil immersion lens actually to work was looked up to as a superior person, not to be found in the common sort of college. We respected the high character and quality of men who

were being sent out from Amherst and Williams, but we could not picture any such thing as an oil immersion lens in either of these schools.

It was not merely because of the oil immersion lens, however, that I chose Cornell. I was attracted by the great vision of Dr. Wilder. He was at that time organizing one of the first pre-medical courses of the country. Most undergraduates, however, did not choose a university because of certain noted educators on its faculty. If they had, such a trend would have greatly influenced our universities and today we might lead the world in education, and the bricklayer's pay might not exceed that of skilled teachers.

Dr. Wilder and the group of pre-medical students in his course imbued me with their enthusiasm to such a point that I, too, began to consider going into medicine, instead of into a salaried position in science. It may have been only a response to the primal impulse to run with the pack, to remain with a group of friendly spirits, every single one of whom had a well-defined objective in life and had gone to college for a set purpose. I was having considerable difficulty in making up my mind. Then, one day, when I was still studying biology, a strange little incident settled the question.

A boy in town had been bitten by a dog, supposedly mad. Local newspapers reported he was dying of hydrophobia. Flocks of curious people were going to the house to enjoy a horrifying spectacle. The papers reported that Dr. P. C. Gilbert was in charge of the case. I hunted up Dr. Gilbert and asked for permission to go with him to see the boy.

The youth, who was about ten years of age, lay upon a couch with eyes closed and was said to have been with-

out food for two or three days. The offer of a drink of water by one of his parents would throw him into a convulsion. If any object like a handkerchief were held near his head, he would growl, snapping at it savagely with his teeth and frothing at the mouth. He frequently uttered menacing growls like those of a vicious dog.

Next day, at the University, I told a veterinarian, Professor James Law, about my visit. He volunteered to go down at once with me to see the boy and asked if the dog had been confined or examined in order to determine if it had really been a victim of rabies. No one seemed to know more than that the dog had been shot. The boy had been attacked and greatly frightened. Dr. Law remarked that tooth marks on the arm were merely bruises, not penetrating the skin, and that the case did not seem quite like one of hydrophobia. He remembered that simulation of that disease had been reported as an occasional phase of hysteroepilepsy.

I promptly ran up to the library and neglected my studies until all available authorities on the subject of rabies and psychoses had been read with reference to the particular points in question. My conclusion was that the case belonged among the major hysterias and consequently might respond to suggestion. Notes were made on a method for securing hypnosis, to be followed by suggestion. I then went down to the boy's house, asked to be left alone in the room with him, and secured hypnosis promptly, to my own tremendous amazement. Then, following up the formula described by authors, I said to the boy that he would suddenly become well at five o'clock that afternoon. While in the hypnotic state he seemed to be so nearly unconscious of my presence that I very much doubted if he were getting that part of the formula at all

or the additional point that he was going to astonish everybody by suddenly getting well; to cause astonishment is one of the strong desires in hysteria major.

I then left the room, asked the parents to allow no one to enter until I came again, and to request the numerous visitors to keep away from the house. The thought of leaving a clock in the room had been carelessly neglected by me, but at five o'clock, or very near to it, the boy, guided by time sense, arose from the couch, called his mother, said that he was all well and asked for his supper.

The entire affair was quite spooky but will be understood in every detail by psychiatrists. The impression made upon me was most profound. I felt that if doctors could get to know about things like that and could render such demonstrable service, no other calling on earth could tempt me away from the study of medicine.

For two or three days I was much abashed because the crowd of curious that had been going down to see the boy, now wanted to see the one who had "wrought" a miracle in curing hydrophobia by "the laying on of hands." Some of them wanted me to place hands upon their rheumatic joints.

The event led to an acquaintance with doctors in town, who kindly allowed me to go about with them on their rounds during my spare hours. Their friendly interest and explanations about cases rapidly deepened my fascination with the subject of medicine. Anyone who was suffering became far more interesting to me than were healthy folk . . . the latter were just a sort of ordinary common run. So it was that a little incident determined in which direction my destiny vane would finally point. It was one of those accidents that determine the course of men's lives—frequently, according to the novelists.

Ithaca doctors and classmates of the "pre-med" course have been patches of brightest sunshine in my career, and at the same time have brought some of the darkest clouds when Atropos completed all work for the dear and loyal friends. I had spent many happy days hunting with them. At Ithaca in those days there were woodcock, quail and ruffed grouse on the grounds that are now part of the Cornell campus, but we were usually farther afield than that by daylight. Our bags of birds on a good day among high hills and ravines ran far past the limit that has now become a matter of necessary legal restriction, but on rainy days and windy days we sometimes didn't get anything at all. Duck and snipe shooting, in the marshes at the head of Cayuga Lake, was always waiting for us on frosty mornings. At times, millions of wild pigeons roared among oaks and thorn bushes on the ridges, giving the impression that the entire landscape of earth and air was alive and in motion.

The pre-medical course at Cornell gave me much more of anatomy, chemistry and physics than were required for the first year of medical college, so I was allowed to enter the second year class when I went on to the College of Physicians and Surgeons in New York. The college at that time called for a three years' attendance upon lectures. A high school education and work with a preceptor were the only requirements for entrance.

Students who entered medical college in my day did so mainly "because of a call" which had been inspired by general practitioners who had come into the lives of these young men in one way or another. A preceptor was required for every medical student and these preceptors—general practitioners—were heroes to the students for whom they stood sponsor. We all knew "some grand old

man" and it was their attitude toward life which led us eagerly to emulate their example or at least to take up a profession that would make it possible to do so. Had we met such men in other professions or in business, these other callings might have appealed to us.

My heroes were Doctors F. J. and F. H. Whittemore, father and son, practicing in New Haven, in whose offices I learned much while awaiting entrance examinations for the College of Physicians and Surgeons in New York.

We often hear about "born doctors" and the term is commonly used in a joking way, but not by me after close personal acquaintance with many born doctors. The Whittemores were born doctors, and it is a source of inspiration even to this day to recall their instantaneous automatic adjustment to every shade of human nature as it appeared in the course of quickly made calls upon patients. I can hardly picture anyone remaining really ill after one of the Whittemores had made a visit to the house.

Theirs was a tremendously busy office, and in addition there was endless visiting of patients about town day and night. A childbirth at 3 A.M. and parents overjoyed; a hurry call just before breakfast to an attempted suicide after a broken engagement; a scalded baby who pulled over a teapot; an old lady with an attack of spasmodic asthma; a case of pleurisy at the stage ready for tapping; three children in one family all down with diphtheria; boy fallen from a tree—broken arm; another boy with a glass cut on the wrist; a business man with an attack of sick headache; a pneumonia case low just before the crisis; malarial chill; two cases of tuberculosis of the lungs; a lingering recovery from apoplexy; mumps;

rheumatic knee; out of bed for a midnight call to a case of gallstone colic.

There were twenty or thirty cases or more in a day, day after day, Sundays, holidays and all. There was never a word about fatigue and no shirking of any sort of call whatsoever for anyone, rich or poor, who was in trouble and needing help from the doctor. Never was there a scowl or a cross word for anybody. No vacation was taken or wanted. There was diversion enough in the cases.

Things have changed somewhat in late years, in the cities at least. A patient must be careful to be ill during daylight hours only, and a cinder must not get into anybody's eye after midnight excepting where the general practitioner still is to be found. I wonder what would have happened if any one had ever suggested division of a fee to these two physicians. It is easy to picture the look that would have come over their faces.

A number of cases requiring nothing more than details of treatment were placed under my care. Changes of dressings for wounds and renewals of prescriptions gave me experience without subjecting patients to any risk. My studies in comparative anatomy at Cornell had given me a good enough basis in human anatomy so that I could be entrusted with management of splints in some of the fracture cases. There was frequent opportunity to act as assistant in operative cases and I was allowed to complete the amputation of a leg that had been nearly severed in a railway accident. My entrance into the field of surgery had therefore made a pretty fair start in 1879, some three years before graduation from medical college in 1882.

In the office of the Whittemores I was deeply impressed with the realization that doctors must be men of physical strength and endurance far beyond that of ordinary folk.

Since then, I have seen family physicians die because when out of health, temporarily perhaps, they became exhausted in following the call of professional duty. This has been particularly true during influenza epidemics when doctors answered calls to patients who were not as ill as they themselves were. After all, everything in professional life as in business life is directly dependent upon the physical constitution of men who are in responsible position.

The Whittemores not only had the requisite degree of physical strength for hard work day and night, but with it all they carried that calm, cheery, hopeful manner that gives courage and comfort to all who come under its influence. Sometimes I think that these qualities in a retroactive way actually give men great physical strength as a matter of beautiful exchange. We have all seen men with good enough muscles become cynical, suspicious, grasping and over-shrewd and then pay for their chosen attitudes in terms of ill health.

Men like the Whittemores made the preceptor plan of education an invaluable one. Study with a preceptor engaged in general medical practice furnished almost the entire preparation of a student for medical work and corresponded to the system of "reading law" under some established member of the bar. Young doctors and young lawyers were in this way fed upon oats very early in their careers.

The preceptor period began in the first stages of medical study and was more or less continuous until the young man, out of college at last, felt himself to be superior because he could remember just which nerves supplied the hip-joint while his preceptor had only a hazy remembrance that in all probability there must be some nerves

in that vicinity. Permanent goodness had been instilled into the young doctor, to say nothing of art, and it continued long after he himself had forgotten which nerves, if any, supplied the hip-joint.

The sum total of medical knowledge was at that time very much less than it is today. Three years of study at a medical college allowed the student to cover practically his whole field of theory. Today, educators are greatly distressed over the question of what may best be selected for crowding into a four years' course, and the preceptor has almost gone out of the picture.

When advanced theoretical work became the dominating idea in medical schools, and methods for acquiring methods occupied much of the time of a student, the preceptor idea dwindled to almost nothing—heart exchanged for head, instead of continuing as a blend.

Said Emerson: "We love to associate with heroic persons, since our receptivity is unlimited; and with the great, our thoughts and manners easily become great. There needs but one wise man in a company, and all are wise, so rapid is the contagion."

The three greatest social forces in this world appear to me to be love, oratory, and propinquity, the greatest of these being propinquity.

At the University of Wisconsin Medical School, fourth year students now work under supervision of competent practicing physicians, and are sent for part of the year into Milwaukee, Chicago, and smaller cities under the supervision of experienced clinicians. In this way they are in direct contact with the problems of medicine. President Glenn Frank says that in his opinion they are receiving a more careful personal instruction in clinical medicine than is provided in any other medical school, and that the

students are nearly as well trained at the end of their fourth year at Wisconsin as the students of many medical schools are at the end of their (hospital) interne year. My comment is: They are far better trained!

Frank states that the preceptors receive no financial remuneration for their share in the educational work, and he modestly leaves that particular point in negative phase —"the teacher getting nothing out of it." To me, there is a positive phase. A bee gets best pollen from freshly opened flowers. The best things for which I received credit in practice were gathered from my young hospital assistants just out of college. Ergo: Wisconsin is building better than it knows. This re-introduction of the preceptor system is truly a long step forward in the uncertain movements of medical education for the present century to date. It will in all probability be followed by other medical schools.

CHAPTER II

MEDICAL SCHOOL OF THE EIGHTIES

WHEN I entered medical school at the College of Physicians and Surgeons in 1880, medicine stood upon the basic sciences of anatomy, physiology, chemistry, botany, and pharmacology. What a meager curriculum compared to that of today, which includes biology, histology, histopathology, bacteriology, endocrinology, psychiatry, and immunology. And the latter is becoming so fascinating in its possibilities (along with its failures in practice) that, were I to begin professional life all over again today, my work would be general practice, with immunology as a special side study, just as one of my friends at the club goes into higher mathematics for purposes of relaxation.

When I was a student, there was none of the rowdyism that is legendary in relation to medical schools. Psychologists used to explain that sort of thing by saying that young men before leaving home influence had always been imbued with the idea that our interiors are largely spirit. When they got to the dissecting room and found only livers and such within us, it unshipped the rudder, allowing students to bounce about upon billows for a while until new steering apparatus could be devised. It is possible that rowdyism belonged to old medical student history in the days when body-snatching from graveyards was

more than a suspicion. Many of us have heard the details of this custom that became obsolete when the almshouses turned over their unclaimed charges to medical colleges after the closing scene of life. There was not a trace of rudeness at the College of Physicians and Surgeons in 1882 so far as I remember.

The College of Physicians and Surgeons was at that time on the corner of Fourth Avenue and Twenty-Third Street. We had famous teachers, Markoe, Sands, Weir, Bull, Detmold, Clark, Sabine, Dalton, Curtis, Chandler, Delafield, Jacobi, Thomas, McLane, Agnew. There was a pathological laboratory conducted by Dr. T. Mitchell Prudden, but work there was not obligatory and most of us were so filled with fears about flunking on examinations that we had little time to study about anything as "unnecessary" as histology or bacteriology!

From the students' point of view, Dr. Prudden was not a notable character. This was because we were not responsible to him for answers to any questions in examination papers—the only thing engendering respect on the part of students. A few of us, however, including particularly my 1882 roommate, Frank Dwight, became deeply impressed with the conviction that he was becoming one of the greatest American forces behind the beginning of public health movements. We often found ourselves asking if he were not a pioneer in pathology who might make history. Sometimes, when we were out for a tramp in the woods and fields, Frank and I would suddenly bring up Prudden almost simultaneously, and then, upon our return, would go to the laboratory to ask foolish questions of a man so gentle and modest that he at once made our questions appear to be important. If they were not, he made them so before we left.

Up to the time of knowing Dr. Prudden, I had supposed in a sort of youthful way that the only important people in the world were the ones of whom we were hearing a good deal. Since that time I have come to know intimately very many men and women in and out of the profession who were simply wholesome everyday folk on casual acquaintance, but who were later found to be of tremendous hidden influence in good works. I wish we might have autobiographies from some of them, but they are the very ones who do not write autobiographies as some of the rest of us do.

Weir told us about the new idea of Listerism, and he was undoubtedly the first surgeon to attempt its introduction into New York, but there was little of system about its application and the subject was looked upon with a sort of amused tolerance by a few leading surgeons of the day, whose attitude was a sort of question, "Well, what next?" They were employing antiseptics but not calling them that, and not knowing just why such things were beneficial. Various chlorine solutions, carbolic acid, oil of tar, alcohol combinations and balsams belonged to routine wound dressing, but none of these germicides were called germicides nor were they employed in anything like a comprehensive system. They consequently failed to do more than a minor part of antiseptic service. Most of the surgeons of the country scoffed at anything so fanciful as microbic influence, and they were not slow in expressing their opinions about men whose imaginations could be captivated by bad little fairies.

I remember one day when a young woman with a small tumor of the breast was brought into the clinical lecture held by Dr. William Detmold. It was a hot day and he was seated in a chair holding a palm leaf fan in one hand

which was kept vigorously in motion. He asked an assistant to hold the frightened patient firmly and then picking up a knife, made a sudden cut and enucleated the tumor with one hand, meanwhile keeping the fan at work in the other. He told us of the advantage of quickly performed accurate work, and then related an incident which had brought him into prominence at a time when he was a young and unknown surgeon in Germany. He had been at a dinner with a family of the nobility. An annoying fly kept alighting upon the tablecloth near his hostess. Taking up a sharp knife he poised it in the air for a moment, and bringing it down quickly, cut the fly in two. Anyone who could do that was a surgeon of such quality that the startling incident was discussed in high circles, and he was given a position which led to fame in the Franco-Prussian War.

I wonder how far a young surgeon would get today in this country after slashing a cut through fine table linen and into polished mahogany for the purpose of leaving a divided fly in full sight of diners? The day of bravado and the bizarre has gone into past history for the most part. They are not even amusing to men who now doff their coats and get down to real accomplishment in order to gain respectful attention from others who are doing the same thing.

At the time when I began medical study, Mott and Wood could still play to the gallery with benefit to themselves as well as to their patients—a distinction which may sometimes be made. Their speedy amputations were completed while students held their breaths. Chandler played to the gallery commendably in our lectures on chemistry and physics. He kept us all laughing over stiff scientific points until they were bent into hook form and hung fast

in memory. A deeply serious chemist or physicist would have strongly disapproved of any such levity and would have taught us less. Surgeons who were held in highest respect were then as now the ones who made unconscious appeal through gentility, character, scholarship, and skill.

My first meeting with Dr. Joseph Leidy was in 1876, if memory serves correctly. I had taken to him some specimens of entozoa from a trout (Salvelinus fontinalis) which had not been classified. Youthful embarrassment in the presence of a great man led me to ask an absurd question, and realizing that fact I became still more embarrassed. Dr. Leidy, comprehending the situation, said in a low, cultivated voice and with gracious manner, "That question is one that might very well be asked by anybody." Here was a man of unquestionable greatness taking the trouble to exercise ingenuity for the purpose of putting a young man at ease. Prudden, having that same manner, made it possible for Frank and me to go to his laboratory with questions that we would never have dared to put to anyone else, although now I know that Welch over at Bellevue College would have given us similar reception. In fact, he was eagerly looking for young men who would come and bother him.

In my college days physiology was fairly well comprehended in textbooks of moderate size. Today it is impossible for any one man to be familiar with all branches of the subject. It interlocks with a number of highly developed independent sciences.

In the Eighties or Nineties what publisher would have dared to offer Needham's *Chemical Embryology* in three volumes at thirty-five dollars for the set? We didn't even know that an embryo had any chemistry worth mention-

ing. And who among learned men had thirty-five dollars anyway?

We could at that time find seventeen doctors who did not believe in microbes to one who would have paid six dollars for Otto Rahn's book on *Physiology of Bacteria.*

We had few instruments of precision. There was the stethoscope which, then as now, gave inside information in accordance with the sort of ear that was behind it. The clinical thermometer required three minutes for registering temperature, and people in general were more or less unfamiliar with its meaning. An old Irish lady in one of our Bellevue Hospital wards would not allow a thermometer to be put in her mouth on the ground that the doctor had put it in that of a patient in the next bed who had died less than an hour afterward. Speculums of course were ancient in history and sometimes in the office. Edison had invented the incandescent lamp in 1879, but many years elapsed before it found its way into the cystoscope and other scopes.

Before the year 1870, in this country there were no laboratories excepting those of anatomy, because the expense of laboratories seemed too great for the teachers who divided fees that were received from students. Naturally some excellent teachers developed in some of the second-rate proprietary schools, but up to nearly the end of the nineteenth century mediocre schools were flooding the country with a mass of half-baked, well-meaning, physicians who had little technical education and less training in ethics.

Up to 1890, at least, the pharmacist made up carefully thought-out prescriptions, some of them containing elements of genius on the part of the doctors who wrote them. Pharmacists who were thoroughly qualified to fill

these prescriptions with precision and care, entered fully into the spirit of the situation and very often called the doctor in to discuss some feature of chemical incompatibility, perhaps, or to warn against possible danger. I remember to have gotten in too much of something once or twice. Nowadays this has all been changed. The writing of prescriptions has gone largely to the manufacturer, while the pharmacist is engaged in merchandising. Not only patients, but also physicians, and incidentally pharmacists, are more than they realize under the control of commercial interests. Instead of devising prescriptions with skill and knowledge the physician is becoming more and more a mere distributor of ready-made mixtures, the composition of which he must take for granted.[1]

Changes in medical education have been drastic during the past fifty years. The education of physicians has become a very costly undertaking and the Medical Departments of Universities now call for greater expenditure than any of the other colleges belonging to a University. For the physician it means an actual expenditure of from $15,000 to $25,000 for the completing of his preliminary education before entering into practice. Formerly, a few months of actual study at a medical school and two or three years of apprenticeship under some practitioner sufficed for preparing a doctor for his profession. At the present time, a medical student commonly spends four years in a course in letters or science, four years more at the medical college, and two years in hospital service be-

[1] On the other hand, there is much to be said in favor of merchandising certain features of pharmacology. Immensely valuable new remedies are given wide publicity because of financial interest, advertising facilities, and distribution methods of large drug houses. Furthermore, there is keen interest on the part of experts in the development and perfection of remedies of unquestionable value in order that the inventors or research workers may obtain personal profit. We must look fairly, then, upon both sides of this particular question.

fore attempting to engage in practice. The student often spends one or two additional years in Europe in order to become familiar with methods of work in other countries before taking charge of a clientele at home. This means that he is pretty well along toward middle life before beginning to realize anything in a financial way from his large investment. If prospective financial returns or a stockbroker's leisure were to offer the only inducement for going into medicine, our country would be short of doctors overnight, so to speak.

Financial return is not the chief activating motive for young men who go into medicine. We find that during the long years of study they have enjoyed the inspiration that goes with education for its own sake. Many a man who has gone into business in his youth would be glad to exchange a reasonable part of his fortune for that education. The treasures of life are the fine things that we get out of it as we go along. Jepson, in the preface to his *Trees of California,* says that "the cultivated man with keen intelligence and a broad and liberal outlook is getting more out of life and is really more practical after all than the so-called practical man who has narrowed his interests to those which concern his immediate personal needs."

One fortunate result of the long and expensive course in medical study with its daily enjoyment in these various contacts with life has been a weeding out of the sort of men who fail to make ideals of the profession an end in themselves. The ones who might be moved chiefly by hopes of financial return know very well the speculative feature of that part of any profession. Some of the most highly educated lawyers, clergymen, engineers, and physicians cannot make a fair living. Concentration upon the philosophy or science of their professions may interfere

with the genius of making human nature open its contribution box. A lawyer of large practice told me that several of his office clerks knew more law than he did. The manager of a dominating department of a railroad said to me that his chief secretary, a woman, could manage the entire railroad better than he could, if called upon to do so.

There are doctors of the very highest character and qualifications who are so beset by philosophy that in the presence of a patient they let doubts of various kinds quietly revolve in their minds. Whatever a doctor has in his mind will be instantly read, as a rule, by clever women patients, regardless of any words that he may choose to let loose. Words might as well be omitted altogether if the doubt is one of much importance.

One of my classmates at medical college, who had graduated with honors from Yale University, obtained the Harsen prize when graduating from the College of Physicians and Surgeons, and obtained first position in the competitive examination for place on the House Staff of Roosevelt Hospital, could not build up a practice. He was a man of charming presence and worthy of confidence. We could not understand why he had no clientele. One day he happened to be in my office when an elderly lady with chronic bronchitis came in. I explained to her that my work was surgical but Dr. H. would gladly take charge. He made an excellent examination of her chest, got a good lot of history notes, sat down and wrote a prescription. Said he, "Now, Madam, please take this for a week and if it doesn't do you any good come to my office and we will try something else." Here was a key to the whole situation. He was incurably honest and conscientious. He had his doubts. The public will not stand for that sort of thing. Had he informed her that she would be

getting "a little better day by day in every way," for a week, and that something stronger would then be given, the mental effect would have been distinctly helpful until iodide of potassium and belladonna had been given time to exert their own influence. We were all very fond of H. but a number of us had to contribute toward his support for years until he obtained a position as agent for a mineral water. The business booster of a mineral water of little special value may make millions of dollars and employ prize-winning medical scholars on small salary as his agents. People go far in trusting water.

Many good doctors lose themselves in the fashionable element, containing, as it does, so many futile lives throughout the world. Somebody with a small symptom and large leisure, let us say, has at last something upon which attention may be concentrated. Money does not count when anything so important as a symptom is at stake. Demands made upon doctors with growing reputation become so insistent and persistent that the entire time of an exceptionable clinician may be expended in this worthless kind of easy practice, which is so well paid for, that the doctor gradually and unconsciously loses keen interest in being really clever at diagnosis and management of important illness. This same element in social life takes quickly to faddist medicine because in addition to having a symptom, there is the fascination of exploration into something containing the stimulating feature of mystery, or of controversy and of the forbidden.

A serious social problem arose concomitant with the high requirements for preparation of physicians for practice. Doctors expensively equipped could not go with any degree of satisfaction to communities that would be unappreciative and where patients could not or would not

allow doctors to attend to all of the modern features of diagnosis and treatment which education enabled them to see the need of in almost any sort of case. A doctor who knew how to work out all of the infection factors in a case of rheumatism of the joints and who knew that it really should be done, would be very unhappy if an old gentleman asked only for something "to put on his knee" —something that would be better than the liniment purchased at the drug store. And because "something to put on the knee" was all that the old gentleman wanted, he only wished to pay the doctor what he would pay the druggist for a bottle of medicine. One answer to this problem is being made by establishing hospitals in the smaller communities.

CHAPTER III

INTERNING AT BELLEVUE

AFTER graduating from medical college in 1882, I went up for examination for position on the Bellevue Hospital staff and got in on the Fourth Surgical Division. A wholly new phase of professional life appeared. Responsibility! Previously, when acting in the rôle of unofficial assistant to other doctors, it had not occurred to me that any particular responsibility went with assuming the care of patients. They simply appeared at the office or hospital and the doctors simply did the right thing or otherwise as the case might be. It was this "otherwise" that now began to loom very large and to weigh heavily upon my conscience.

Bellevue, situated on the waterfront of East River, had at that time not quite eight hundred beds but even at that was the largest general hospital in this country. As one of the group of hospitals under charge of the Commissioners of Public Charities and Correction of New York City, it served as reception hospital for the steady stream of injured and ill of a great city who were being brought in at all times of day or night by its own ambulances and by transfer ambulances from other hospitals. Hopeless chronic cases, the insane, and cases of contagious disease were sent over to the Island Hospitals in East River—the final stranding place for human scum and froth that are thrown

off from the rushing currents of a great city's life. Emergency cases of people brought in from the streets and who could pay for more refined care elsewhere were transferred at suitable times later. Sturgis Pavilion and Marion Sims Pavilion had pay beds. On the whole, this hospital gave its medical and surgical staff enormous experience in the diagnosis and treatment of almost every known kind of illness or injury. Patients were coming in or being brought in "every minute," so to speak. The more important cases were transferred by ambulance to New York Hospital, although a naughty rumor had it that "sure deaths" went to Bellevue.

Boastful by nature and youthfully bumptious, I had told other student assistants of the superior advantages that had fallen to my lot at New Haven. I had a marked tendency to do "little things" independently without referring the cases to responsible members of the staff in accordance with hospital rules, but I was promptly humbled and shown that there are no little things in medicine.

For instance, after I had applied a wet dressing of carbolic acid solution to a scratched finger and sent the boy away, Dr. C. A. Powers happened to intercept him in the doorway and brought him straight back telling me that the hospital might be subjected to a suit for damages. Why? Because carbolic acid solution had the peculiar effect of causing gangrene when applied to fingers or toes.

Little things in medicine and surgery may have a dreadful calamity rate to their account, anyway. They may be like some little word in the clause of a will—or like a small nut that makes a difference with machinery if it is on or off. No one knows how many useful people have suffered and died because application of court plaster or some similar home treatment imprisoned microbes in a

small cut on the hand. People forget that Nature is always watching for opportunity to allow her microbes to grow and, so far as anybody really knows, is quite as much interested in the welfare of a streptococcus as she is in any anthropocentric philosopher who is convinced that the world was made for man and possibly for him in particular. A pig has very much the same idea in regard to his own importance and goes into action on that basis quite as confidently and earnestly as does the philosopher. When it comes to a test, we learn that the microbe is final winner over all animal life and all plant life. The last living thing on Earth will almost certainly be a microbe.

Thousands of people have died because they took a cathartic for the relief of a little thing like a stomach ache when the latter was the first symptom of an impending appendicitis. Many a mother has killed her darling child in such a case by giving a dose of castor oil at a time when Nature was intentionally stopping all bowel action for the purpose of allowing an infected appendix to become safely sealed-in and segregated with plastic exudate. Hundreds, and more likely thousands of women, die every year from cancer of the breast because the physician, not wishing to alarm his patient, says that "We will wait and see if the little lump amounts to anything." By the time the little thing is bigger it is too late for us to save life. Many and many a time when surgeons have believed a small morbid growth to be unimportant and yet worth removing carefully for the microscope, it has shown malignant cells in their early stages of growth but at a time when a radical operation immediately following was completely curative. Once, I snipped what I thought was an unimportant excrescence from the sole of a woman's foot just as Dr. W. T. Bull came into the room. He said

that it was epithelioma; that my scissors had possibly sent malignant cells into the patient's circulation and she might die of cancer as a result of my not knowing better.

A girl came in with a loosely applied splint for a fracture of the forearm with so little apparent displacement of bones that I simply tightened the bandages firmly and was sending her out when Dr. L. A. Stimson asked about the case. He said that a firmly applied splint of that length and pressing into the elbow joint would almost certainly cause ischaemic paralysis, costing the patient the use of her arm, and subjecting the hospital to the danger of a suit for damages.

On the Fourth of July a boy came in with a small blank cartridge wound of the palm of the hand, just a little insignificant round injured spot to which I had applied some sort of ointment. Dr. Bull when passing gave a glance at the case, asked a question and then said I would learn something. The boy was given nitrous oxide anaesthesia, a long cut made in the palm of the hand, and out popped a large felt wad that had expanded widely beneath the skin. Dr. Bull remarked that the boy would probably have died of lockjaw or other septicaemia under my dressing. Blank cartridge wounds of that sort caused more deaths than were caused by bullets every Independence Day, he said, because patients get into the offices of doctors who are not surgeons and the superficial wound looks to be a trifling affair. Many doctors do not know about the felt wad just under the little hole and its lockjaw consequences.[1]

[1] At Beekman Street Hospital in New York, Dr. Robert T. Findlay reported that 39 blank cartridge cases were treated in the Fourth of July period for 1929—meaning hundreds or thousands for the country at large. We do not know what proportion of the patients go on to loss of life or loss of hands and arms. The wad beneath the skin is overlooked and the patient dies "in the most surprising way from just a superficial wound."

Theoretically, members of the visiting staff were responsible for the welfare of all the patients in the wards, but they came to the hospital for only a part of each day to operate, make rounds, and study case histories. The senior and junior house surgeons came next in order of responsibility, but they were extremely busy preparing patients for operation, assisting at operations, adjusting splints, going on rounds with the visiting surgeons, examining newly admitted patients, and jotting down notes for me as third assistant to amplify and to enter in the record books.

As a third assistant I had the detail work of carrying out orders from the house surgeon. This meant immediate and direct responsibility. Dressings had to be changed frequently because the permanent dressing did not belong to routine then as now. Prescriptions were written and medicines administered on my authority.

I had to know that digitalis and whiskey given at the same time for holding up a flagging heart in pneumonia might put an end to all of the other symptoms of pneumonia as well.

There was endless work in changing and adjusting splints if patients had muscle spasm and could not rest or could not sleep because of discomfort from incorrectly adjusted apparatus. I was on first call for secondary hemorrhage day or night—something that occurred not infrequently and in a terrifying way even though tourniquets had been applied loosely according to routine, ready for quick action in some of the amputation cases. We used to say that Dr. Gouley knew within an hour of when secondary hemorrhage would occur. In the class of patients we had at Bellevue, delirium tremens commonly came on

in the night following the shock of operative work or of fracture.

Management of hysteria or of a suddenly appearing mania belonged to my part of the day's work or night's work as the case might be. We saw a good deal of unstable mental balance. I had to take my turn in the admitting office and make sure that patients were sent to the right wards. I missed it one night by sending a typhus fever case and an early stage smallpox case to the general medical wards. This resulted in the death of one of our nurses from typhus fever, and a stricken orderly. We shall never know who else was exposed to the tiny carriers of typhus fever or to smallpox germs before the visiting physicians made correct diagnosis in daylight. The two patients were then transferred to "The Island."

Rigors following the passing of urethral sounds and catheters had to be quieted with quinine, tincture of iron and whiskey—several such cases in a day perhaps. The responsibility of having human life and comfort so largely in my hands and the fear of doing the wrong thing weighed so heavily that I became sleepless and could not rest at night because of turning so many cases over and over in mind, minute after minute. In the morning, patients that had caused worry were so often in better condition than had been anticipated, that I decided then and there to take an example from the French doll that closes its eyes at once when placed upon its back. By an effort of the will I decided to become a French doll at eleven o'clock each night. It soon became a habit which has persisted to the present day. Interruption caused by emergency calls or social duties has not broken the fixed general habit. We used to hear laymen talking about surgeons walking the floor all night in advance of some im-

portant operation. It would be much better for the patient to walk the floor all night under such circumstances while the surgeon is sleeping, because absolute composure is essential for him at all times. There is no place anywhere in the surgical world for a tired, worried, or temperamental operator.

Surgical operative work in our division covered a large range—everything from excision of joints to operations upon the eye. After some preliminary study with Dr. Pooley, I had removed three lenses for cataract without losing a particle of vitreous and had operated for synechias and strabismus—something that I would now hold to have been unjustifiable, although the results were first rate. There is much more to these cases than the mere operative procedure but this was not realized at the time. An amusing incident occurred with one of the squint cases. A burglar who had been shot in the back—with spinal injury—was being guarded constantly by policemen day and night. He had refused my offer to straighten his squint, but I wanted very much to do it and one day a bright idea came to mind. I naïvely said that if he would allow me to do the operation, his appearance would be so changed that he would not be recognized by detectives until the police had recorded a new description. That appeal was instantaneously effective; and the internal strabismus was straightened next day with the knowledge of the police guard. As the injured back became daily stronger, police vigilance waned simultaneously because of the long, tiresome watch. One day, when the policeman had stepped out into another part of the ward for a momentary chat with one of the nurses, my burglar sprang up, seized a bread knife and the day-suit of an orderly,

leaped from a window, climbed over the hospital wall into 27th Street and made his escape.

We had desperate characters of many kinds at Bellevue. Slim Jim came on from Utah to shoot an old acquaintance of his whom he had trailed to New York. They met in Union Square. He killed the other man on the spot, but received a fatal wound in the groin from which he died a few days later. Meanwhile he regaled me with many stories of his exploits. On one occasion in New Mexico he had held up a stagecoach. All of the passengers had their hands up excepting an old woman who picked up a green umbrella and began whacking him over the head and drove him away. He explained to me that he couldn't shoot a woman. The burglar of that day was very different from the modern dope fiend. He was often enough a man who acquired high-grade skill in the use of tools, carefully avoided interruption when at work, read the editorial columns in the newspapers and humorously referred to his work as being similar to big business in its nature but more direct and time-saving.

Life histories told by Bellevue patients would have made rich material for any writer, but confidences were reserved for the doctor. They very well knew he wouldn't tell. Sometimes there were well-bred rascals who had fallen from high estate—usually from drink. Many who were not rascals at all had been battered down by drink although struggling against it until it finally won. Journeyman printers falling upon jobless days belonged in the latter group. Like the wild pigeon, they were numerous in that day, but now belong chiefly to news-press reminiscence. Excepting for alcoholic discards from good families, most of the people at Bellevue had never had a fair chance. That is why doctors, the clergy and the police,

well aware of the fact, take so little stock in talk about a criminal class. I remember once standing by the bedside of a blear-eyed dissolute woman who was watching one of the nurses as she went about her helpful, kindly work in the wards. I asked why she was watching the nurse so closely. "Oh, if I could only be like her," she replied with an eagerness that expressed a pathetic yearning. Never had there been a chance for such luck in that poor, thin, flickering life.

People who for lack of other occupation enjoy academic discussion over the relative values of heredity and environment may step into Bellevue at any time for a concrete picture of the way in which heredity furnishes the kind of clay and environment the molding. I often went in to enjoy a chat with an aged Englishman of the Trader Horn type but more erudite, a linguist, poet, and erstwhile writer who had traveled much in his day. He was in the hospital with a hopeless fracture of the hip—a slip on the icy sidewalk and his career such as it was came to a close. Orders had been received to have him transferred to Blackwell's Island—the last junk heap for human wrecks. It was my duty to inform him of the order from Warden O'Rourke and I said that he would have to be transferred unless friends could make other arrangements. He replied in a dazed way, very slowly, "Friends! Friends! I have no friends. You are the only one who has spoken a kind word to me for years." Sooner or later he would be placed upon one of the zinc-covered tables in the long room at the Morgue, and at his feet would be placed a much worn and soiled official placard bearing the simple legend, "No Friends." From the Morgue he would go to potter's field or to the dissecting room where students, between cigarettes, would examine his muscle

attachments and nerve branches, calling attention to anything of interest about his anatomy.

Sometimes there were people with too many friends. I remember a commercial traveler brought in as an emergency case after an altercation in which he had been fatally injured. A published notice of his death brought to the hospital two wives, neither one of whom had previously known of the existence of the other. I was present when they met for the first time. After a few preliminary expressions of surprise and an exceedingly intense scrutinizing of each other, they fell into ordinary conversation without a trace of anger. It was one of the most reasonable conversations that I have ever heard between two people. In the end they agreed to divide his possessions between them, although in point of law no such division would have been possible. They would share the expense of the funeral if his father did not take charge of that. I presume that no large question of property was involved. In all probability the sympathy of one wife for the sorry plight of the other had disarmed other reactions. The sympathy happened to be mutual and I looked upon the incident as a fine display of human nature.

Many cases in the day's work were of interest quite aside from their surgical bearings. They come to mind imperfectly after all these years. A young woman perhaps seventeen or eighteen years of age was brought in by the ambulance. Her refined bearing and neat clothing did not belong to the common run of cases. What was her history? She had undergone a malpractice operation somewhere and attempted to walk home but fainted in the street. She was brought in with a curbstone cut on her forehead resulting from the fall, and told us the rest of the story while still confused and not intending to do so. On the

way to the hospital or before that time she had destroyed all telltale clues for identification. The name on the entrance register was not hers. Three or four days of hospital treatment were necessary before she could be allowed to return home. In the morning newspapers there was an account of the mysterious disappearance of a young woman belonging to a prominent family. The description fitted our patient very well and I went in to see about it. Before reaching her side an old Irish woman in a near-by bed grasped my arm and asked me to lean over and listen quietly.

"Doctor, dear, that poor girrul niver had a wink o' shleep at all at all. Just moanin' low all th' night. Do plaze give her something. 'What's the matter with you?' says I to her and 'twas no answer at all I got. Thin of course I was guessing. Ah, poor cheeld, poor little darlint. She's too young for that, whativer it is."

Then to the girl's bed and a whispered account of the disappearance. A wild, desperate look flashed across her face for a moment.

"Do they know where I am?"

"No!"

"Will they find out?"

"Tell me your wishes."

"If they learn the story I shall commit suicide."

Stepping into the service room I found that the nurse on duty had read the newspaper account also. We agreed that the matter must be kept quiet. An hour later big burly Tim, a police detective, appeared in the doorway.

"There's been a disappearance and——"

"Hush, Tim, not so loud."

"There's been a disappearance and the police is under

orders to search the hospitals. Have ye by chance that sort of a girrul here?"

"Yes, Tim, we have her."

"Well then I can make me rayport."

From the nurse, "Tim, no report! You are a great strapping man and a fine one at that. The girl's life is in your hands. If her family find out she will kill herself!"

"How do you know that at all, at all?"

"She says so and it is in her eye. When it is in the eye that settles it. She can go home in two or three days and say that it was just a matter of wanderlust—her disappearance, you know—or that she fell, hurt her head, became unconscious."

"Wanderlust? Wanderlust? Pwhat's that now?"

"Well! Young people sometimes have a fit of wanting to run off somewhere. Everybody knows about that."

"But if I don't rayport it perhaps it's a case of criminal collusion."

"Well, if that is so, then all three of us are in it."

"Indade that's so! Yees are as good as I am! I must go down to the Station and read me book of instructions. If criminal collusion it is, I'll—I'll—she's goin' home anyway, is she?"

"Yes, Tim."

"Well, niver mind about the collusion. Can I do anything for the girrul mesilf?"

These were days of transition in newspaper reporting. At that time nothing would have delighted the reporters on some papers more than to tear the heart out of a fine family in a case of this kind. If a suicide resulted, so much the more news.

One day a nurse at the Erysipelas Pavilion down on the dock sent up a hurry call. A young man who had just

been transferred from another hospital was delirious with a very high temperature. He kept repeating that he knew how to cool off, meantime looking out of the window toward the river. Believing that he would require restraint an orderly was sent for. Stepping out to the end of the dock where our conversation would not be overheard, nurse, orderly, and I discussed the situation. We should not have left the man unguarded for an instant and the responsibility was mine. All at once there was a scream, a plunge, and a splash. The orderly and I ran to the spot, pulling off our coats as we ran, but it was too late. Dark swirling waters that have carried so many others under the docks of New York had swiftly taken him out of sight among timbers heavily draped in dank green seaweed.

In our wards there was sometimes the naughty boy who worried the nurses. He had never been taught better. First-rate citizenship in that boy, perhaps, but if he had been beaten by a drunken mother and never had heard tell of a father, who then was there to teach him anything at all about conduct? Slum boys are better cared for now in New York. Kind hands are reaching down to them. When under-privileged boys and girls are in a hospital and in the receptive mood that goes with illness, a very little sympathetic conversation shows the good that is in almost every one of them.

As a young and eager member of the house staff at Bellevue Hospital I had been moderately but not very deeply impressed by the manner of teachers from the medical college when giving bedside instruction to students. They often concentrated attention upon the case rather than upon the patient. Features of a case were sometimes discussed in the presence of a patient in such

a way that I had to go in later and pacify feelings that had been ruffled—and fears that had been aroused by the mystery of technical words. The bedside manner of a teacher under such circumstances was rather deplorable and misdirecting for young men who were later to take charge of patients as distinguished from cases. Dr. E. G. Janeway was a notable exception. He would say to a patient in a friendly way and with kindly light in his eyes, "See here, my good fellow, you have suffered a lot and when I tell these students all about it they will understand what you have had to go through. It will help them to make things easier for somebody else with the same kind of trouble."

One day when going rounds with Dr. W. F. Fluhrer, a patient with a broken arm called my attention to an eczema which had caused him discomfort for years. Eczema had few dramatic features and did not interest me the least bit. I passed along merely reporting that the broken arm was doing well. When we had stepped out into the hall a few minutes later Dr. Fluhrer stopped and said "Now see here, young man! That patient with eczema was more interested than you were in something that has caused him mental as well as physical discomfort for years. His look of disappointment was very evident when you passed along with a cursory glance, and no thought of anything but the broken arm that was causing no pain and that would be all well shortly. Now, let us go back and talk with that man as you will have to talk to patients when you get out into the world of practice. There are other things than surgery to be thought of." The man was a "tough" and had probably spent most of his life on the defensive as so often is the case with people who have never had any sort of chance to merge into

methods of gracious contact with each other. Gentlemen and ladies will not know what I mean.

Dr. Fluhrer, with a tenderness of feeling that was perfectly genuine, but displayed rather fully for purposes of my education, asked the patient all about his surroundings in life—the nature of his diet and his daily occupation—all proving to be of the sort that would upset the physiology of an elephant. Dr. Fluhrer then took me aside and said that if I would follow up the case and have the patient come to me for treatment by a gentleman as well as by a doctor the result would be instructive in more ways than one. It was! Furthermore, I believe that it distinctly changed the character and outlook of a tough who was one of the Bellevue patients coming to my office for advice many times after I had settled down to professional work in the city.

In regard to the slander that other hospitals transferred hopeless cases of illness to Bellevue in order to keep their own statistics good, I feel certain that no one in high authority would have given such orders. If zealous young staff men chose to do that it gave us perhaps the best real hospital service in the country at that time. (Sufferers are commodities in routine hospital work.)

There are tricks in all trades, however. Sometimes cases that were "uninteresting" were taken to Bellevue in good enough conscience by ambulance surgeons of other hospitals who did not wish to fill their own beds with "dead wood." I remember that one day after an ice storm several fractures in the region of the ankle were brought to Bellevue by the Chambers Street Hospital ambulance. One of our staff quite innocently asked a member of the New York Hospital staff why they did not want these important cases which call for a high degree of skill in

treatment. The ambulance surgeon when held sharply to account, said he thought they were nothing but sprained ankles and he took them right over to Bellevue as fast as he picked them up. Since the advent of the X-ray we have learned that almost every "sprained ankle" is a fracture case.

Although there were only four or five deaths per day at Bellevue in 1882 they amounted to about fifteen hundred deaths in the course of a year. That gave us wonderful opportunity for post-mortem examinations; and at the morgue we could rehearse any sort of important operation before trying it upon living patients. I doubt if any surgeon can possibly know just what this means unless he has had similar opportunity, as most of the masters really have had. It frightens me to think of the mistakes, wrong moves, and anatomical blunders that must certainly be made daily throughout the country by amateur surgeons who have had no prosecting to do in advance of plunging into living anatomy. Our laws however give them that privilege.

By 1930, the Commissioners of Public Charities and Correction had charge at Bellevue of more than two thousand beds. Half a million patients are treated annually in these beds and in the dispensaries connected with the hospital. There is no longer the popular dread that at one time led up to the name of "Black Bottle" for a place from which so many patients failed to emerge.

I sometimes wonder if the young men of today are getting as much out of Bellevue as we did. Perhaps more, but in a different way. Is there today a kennel on the grass of the hospital yard where any member of the staff keeps his beautiful red Irish setter as I did, for an occasional afternoon shooting trip away uptown or across Forty-

Second Street Ferry to the "Jersey Side"? Drs. W. T. Oppenhimer, Horace N. Williams, or Julius H. Woodward kindly looked after my wards in my absence, more often than I looked after theirs in return, I fear. We were all good friends on the Bellevue staff and always afterward as well. Every man knew that every other man was there upon a basis of scholarship, something that commands genuine regard during our younger years at least. Then again each one of us was extremely occupied at minding his own business—the prize recipe for peace anywhere. We looked with feelings of deep respect upon men who had had six months more of experience than the rest of us and who consequently knew just that much more.

All of the members of both medical and surgical staffs, twenty-four of us, had their meals at one long table in the dining room. In addition there was genial and clever "Freddy," Dr. F. V. Wildman, of the Pavilion for the Insane. We all went by nicknames or first names for that matter, and anything so serious as the title "Doctor" could come only from third assistants or from substitutes.

Among the visiting surgeons of my day the last one left was Frederic S. Dennis whom we all delighted to watch in sleight-of-hand dexterity at operative work, and whose classical volumes on surgery became a library feature in this country. I remember once going to see him remove a stone in the bladder by the perineal route. I turned to speak to a man behind me for a moment. When I looked back Dennis was holding the stone up in his long forceps for the class to see.

The old scenes are in a fond but misty past. There are

city blocks now where the quail used to call, but over at the edge of the Hackensack marshes I could probably even now find a brace of woodcock or snipe or a little bunch of black ducks. As recently as thirty years ago there were muskrat houses in sight from the Broadway Elevated Railway long before One Hundred and Fifty-Fifth Street was reached.

CHAPTER IV

ANTISEPSIS ENTERS

WHEN I first became a member of the house staff of Bellevue Hospital the operating room was similar to that of most other large general hospitals. The set-up consisted of a plain wooden table to carry instruments, lint or oakum dressings, unbleached muslin bandages (we had no absorbent gauze or cotton) and a large tin basin of tap water. Sometimes plaster of paris and other splint outfit was added. In the basin of water were one or two sea sponges, and we were instructed to have them so clean that no loose sand or bits of shell could get into a wound, because such things are irritating! Sponges were squeezed out over a slop jar in the course of an operation in order to avoid changing the water in the basin too frequently. If the orderly had not washed instruments so well that metal parts were free from previous soiling he was reprimanded, but on the wooden handles it didn't matter so much. Eye specialists were more fussy, as befitted a more delicate kind of surgery. Their instruments were laid out upon a very clean napkin and arranged in the order in which they would be used. This careful arrangement stood for nicety in preparation for dexterous work and no fumbling.

In hospital work the operator often threw off his coat and rolled up his sleeves in a most daring and carefree

way, but that sort of thing would not do at all for operating in a polite private home in the presence of a husband and terrified family—where most of the surgery was done in that day. In order to avoid soiling of clothes the operator often put on a kitchen apron, preferably of some subdued color, or a linen duster. The black dissecting room gown was chosen by some, although that was a sort of affectation. When a visitor dropped in with a lighted cigar in his hand, he was warned to keep away from the anesthetist if ether was being used because of the danger of explosion. The visitor almost always remembered these instructions unless he became absent-minded when the operation developed interesting features. Such explosions occurred now and then in different hospitals but not twice in any one of them. Flies did not worry an operator at all because they were certain to go to the wound and leave him alone.

In order to "stimulate the healing" of wounds there were various solutions of chlorine and chlorides, alcohol and carbolic acid. Each one of these had its advocates who became indignant when other surgeons did not appreciate his choice. Balsam of Peru was held in esteem, particularly when it was incorporated in oakum. It smelled better and was more aristocratic in price than tar oil which some men preferred—and with statistics of course for upholding their views. I hear some reader remark, "Yet the patients lived!" Yes-s-s. Leave the definite article out of the remark and it will pass.

Dr. Bryant, who became very much up-to-date later, would at that time hold a knife between his teeth in pirate fashion while adjusting a tourniquet and then give the knife two or three quick strokes across the leather heel of his shoe in order to perfect the edge before amputating a

leg. There were many amputations in those days because that was the last word for almost all compound fractures of the extremities. Several such cases might sometimes be brought in by the ambulances in a single day. Surgeons in general, washed their hands after operation rather than before operation, or more properly after they had packed an amputation wound wide open with Sayre's wonderfully successful dressing of oakum soaked with balsam of Peru.

In some of the wards, under prevailing surgery of that day, it was customary to use one or two sponges in one basin for dressing all of the wounds in a ward on morning rounds; but the water was usually changed for each case, poured from a pitcher, and the sponges carefully rinsed excepting when that detail "was not necessary." A refinement consisted in having a nice little soft white sponge along with a larger coarse one—in the same basin. When too many cases of erysipelas, pyemia, or septicemia appeared in a ward, patients were removed, doors sealed, and the ward fumigated "thoroughly" because "bad air" was responsible for the trouble.

McLean advised us to use as many precautions in obstetric cases as were observed by us in going from one case of measles to another. Some of the leading obstetricians had become convinced that childbed fever was really contagious, although they could not at all understand why it should be. But the majority would go from such a case to their next parturition case without any sort of adequate preparation. They were kept pretty busy at trying to remember all that they already knew. The fatalities in the practice of one obstetrician were described as being due to an ozaena from which he was suffering—a conscientious man who turned his obstetric cases over to others

until he had been successfully treated for the nasal condition, which may really have been a factor in the infections. Puerperal fever was distinguished from milk-fever —the chill of the latter occurring about the third day after childbirth while the more dreaded chill of puerperal sepsis came about the sixth day.

When making rounds with Dr. Gouley, the genito-urinary expert, I carried the tray of sounds which were passed first upon one patient and then upon another, but instructions were given to wipe each sound carefully in preparation for its use in the next case. Think of that, ye modern aseptists! Dr. Gouley, violent in controversy, but a dove with suffering patients, was almost a wizard in his dexterity, skill, and gentleness. He inspired us all with lessons that never were to be forgotten. I wish he were here now to receive our tokens of esteem. Antiseptic surgery, however, he looked upon as "fanciful quackery." Dr. W. F. Fluhrer and Dr. Stephen Smith were doing their best at introducing this new idea into Bellevue Hospital but it received scant courtesy on the whole. There was little apparatus for management of any system of antiseptic procedure, although there were some "carbolic teakettles," as the Lister spray apparatus was contemptuously called.

In the latter part of 1883 or early in 1884 came a revolution in our hospital method. Dr. Frederick Lange who had received his training at Koenigsberg in Prussia, and who was well known abroad, was appointed to the position of Visiting Surgeon on our Fourth Division. It was a very unusual thing for a newly arrived foreigner to receive such distinction at a time when a number of American surgeons of standing were seeking the position.

Dr. Lange was a Prussian martinet. He had that severe

but effective kindness which obliges others to do what is best for themselves and which leads to revolt when others are unwilling. It was a revelation for us independent young Americans who had been accustomed to pick up what we chose to pick up in the way of education and to drop anything that caused friction with what we already knew. It was the day of elective courses at some universities where thoroughbreds were being trained for high jumping without being given firm ground in science and the humanities for a take-off. Dr. Lange held us right up to the line with rigidity on every minute detail of antiseptic technic. His eagle eye caught us making trifling slips, and at first there was much grumbling about "foolishness" whenever he obliged an assistant to prepare his hands all over again if a finger touched an unsterilized object ever so lightly. We assistants, however, had been trained in pre-medical college days to understand just what scientific method really meant when applied to anything at all. We came to realize what we were seeing, and soon began to revere a teacher who forced us to do what was right. Surgeons today with their sterilized gowns, caps and face masks, rubber gloves, sterile gauze in place of sponges, and rigid rules against touching any unsterilized object in the room, cannot at all picture the days when such things were new.

As a result of the change in our Bellevue wards brought about by militant and determined Dr. Lange, the previous teaching on the part of gentle, lovable and conciliatory Dr. Stephen Smith and of wide-awake Dr. Fluhrer were at last driven home and given the recognition that had long been deserved. Extremely rapid change in method then took place in all of the Surgical Divisions although young members of the house staffs had already gone ahead

of some of their superiors in the matter of technic. Visitors to New York who took in Bellevue as one of the sights after visiting Chinatown and Brooklyn Bridge looked into the wards from a permitted doorway and asked, "But where are the people who are suffering? These patients are reading or playing games or entertaining each other in ordinary talk. Take us to where they are writhing and groaning in misery." Those, of course, were not exactly their words but expressed precisely what they had come to see. They might really have seen something of the sort occasionally at the time when I first went on the staff, but not at the time of finishing my term of service eighteen months later. The hospital ward had by contrast become a sort of social club.

Visitors to Bellevue included several widely different types. Sometimes there were committees of angel-faced women from charitable societies in and out of New York who came to look over conditions and report back to their institutions. Today such committees have broad-heeled shoes, firm step, and a more practical and efficient look. Other visitors were morbidly curious folk who wanted to see the Hospital as one of the sights of New York, as described in the newspapers—a craving for the gruesome. Newspaper reporters every now and then were given assignments to get Bellevue and they got it. We were not permitted to give them any sort of information whatsoever, on pain of dismissal, as a rigid rule of the hospital, and their write-ups were make-ups written in the spirit of impatient and irritated news gatherers who had to furnish copy or go without dinner. The better Press today finds more interest in genuine reports of matters of value in relation to medical progress. Another sort of visitor was the shyster lawyer or his representative, known as

"ambulance chaser," who would get to the bedside of some one who had been injured on the false statement that he was a brother or some other near relative of the patient. Relatives of course were allowed to visit patients at certain hours on one or more afternoons in the week.

When antiseptic surgery had changed the whole appearance of our wards, there was one rather curious feature connected with the application of the principle of permanent dressings. It had been made possible for us to leave dressings on wounds for days at a time without change while recuperative processes were taking place safely. A good many patients who had been in hospitals previously began to complain that they were being neglected—their dressings should be changed every day or they would take the matter up with ward politicians of their acquaintance, and bring influence to bear upon us.

Sometimes a "bum" would call out loudly and arrogantly that he wanted to have his dressings changed. When we demurred he would ask what we were being paid for. (We received no pay of course.) Occasionally when a wound was not doing as it should, we would be informed by other patients that the patient in question was secretly lifting up dressings in order to look under and see how things were going. Microbes had peeked in at the same time. We had trouble with tramps who came to New York in winter and wished to be housed in the Hospital for a long time. They would put salt or pepper from the serving tray upon leg ulcers or self-inflicted wounds unless careful watch was kept by nurses.

It was my turn to hold the position of Senior House Surgeon when Dr. Lange was succeeded as visiting surgeon by Dr. X. The new chief was outspoken against any new-fangled surgery taking the place of what was known

to be "safe and sane"—an expression that is much used by folk who do not wish to change their ideas. On the first day of his service I refused, on moral grounds, to carry out his orders. This of course was a situation not to be tolerated—disobedience to authority. He flew into a rage and said that if I preferred to follow the ideas of "some damned Dutchman" (meaning Lange), another house surgeon would be found at once. According to report there followed a special meeting of the Medical Board. The question arose if it would be wise to establish the precedent of allowing a house surgeon to dictate to his superior officer even though the house surgeon were right. We heard that Dr. Stephen Smith, Dr. Fluhrer, and Dr. Janeway had finally dominated the situation and another visiting surgeon was to supervise the ward work temporarily.

Curiously enough Dr. X apparently forgave me about three years later, and it came about in a rather odd way. I had been called in as the nearest doctor to see a noted actor suffering with thrombosis of the leg. When the question of an operation arose he said very promptly, "Oh, no! You are too young. There is too much at stake. Give me comfort until I can get Dr. X if any operation is in prospect." It so happened that X was in when I called and in the ordinary form of customary courtesy stated my wish to have him take charge of the case.

It was not until later, when wondering a bit about his amiable bearing, that light suddenly dawned. He apparently did not realize that it was the patient himself who had demanded a change of doctors and that he had been the one specifically named. In the three years that had elapsed, however, it is quite possible that Dr. X had moved meantime up-to-date because changes were taking

place very rapidly just then. He had, at least, learned that my grounds for refusing to obey orders were well founded, and he was a large enough man to "forget the incident."

After this momentary but serious period of disturbance at the hospital, I was given wide latitude of action during that term of service and had opportunity to do a number of major operations and devise a good many special procedures through the kindness of Dr. Fluhrer. He was not interested in the common run of operative cases, except those requiring special skill, but was at that time especially devoted to brain surgery, in which he developed technical points of great value.

Dr. Fraser Fuller as house surgeon on another Division had wired a patella in a case of simple fracture. A similar case came into my wards a few days later and Dr. Fluhrer stood by and directed mechanical details that might prove to be of service. I should have given him credit in the published report of this case and of a second one, but my youthful lack of courtesy had certain compensations and spared him the fierce hostile criticism that was immediately aimed at Dr. Fuller and me. These were the first cases of wiring of simple fracture of the patella that had been done in this country or elsewhere so far as we knew. Surgeons in general arose in alarm over the introduction of the idea of opening an uninfected knee joint. We were berated editorially and at medical society meetings for doing "bizarre surgery that was so fraught with possibilities of disaster as to be wholly unjustifiable." It was made clear to us that if a case of that sort were to get into court as was likely enough and probably soon, we could not have protection at the hands of the profession, a more serious matter than laymen can realize.

Law does not permit a doctor to do anything that has not already been done previously by somebody else, except on risk of penalty. The surgeon who is advancing his profession with new work stands at all times over the muzzle of a loaded gun hoping that no lawyer will come along to pull the trigger.

It is highly adventurous for any doctor to get near the periphery of our professional circle. Doctors "hang together unless they believe that some particular one should hang separately." The idea of exposing a simple fracture of any sort by a surgical operation for the purpose of wiring displaced fragments was quite new, and honestly horrifying to many of the older men who saw that such a case thus became their dreaded compound fracture. To them compound fracture usually meant amputation if not actual death, and we were deliberately putting a patient right up to that critical position. Surgeons came over from other hospitals to see our technic but not without many warnings and expressions of justified fear. My work was classified as "aggressive surgery" in order to distinguish it from the old-time surgery which was mostly confined to wounds made by accident, or otherwise unavoidable, according to the standards of the day.

At that time there was great dread of opening the peritoneal cavity. All sorts of plans for avoiding that gruesome mishap excepting when the risk was clearly justifiable will be found described in medical journals of the Eighties. I was one of the few who had lost that fear and who believed that the peritoneum resisted infection better than the skin resisted it, because of the better protective mechanism belonging to the physiology of the peritoneum. This idea of mine when first promulgated caused a good deal of gasping and shivering, but is now taken for

granted and is not even discussed. The present generation of surgeons will not know what I mean by bringing up any such topic.

The theory of contact infection was first developed in the middle of the last century by Holmes and Semmelweiss. They were the first to advocate methods which today belong to asepsis. But at that time they did not have the work of Pasteur as a basis for their theories. They were consequently ridiculed;—Holmes was ignored, Semmelweiss was jeered at. The former had a sense of humor that allowed him to remain sane; the latter grieved himself into an asylum, and ended his life there.

It was some twenty years later that Lister introduced his theory of air infection, and with the backing of Pasteur developed his antiseptic method of wound treatment. Von Bergmann in 1892 went a step further and introduced asepsis. This theory, developed by Schimmelbusch, showed that it was more important to prevent the entrance of microbes into the operative field than it was to destroy them after they had gained entrance. The Von Bergmann principle of holding microbes at a distance quickly succeeded the Listerian idea though founded upon it. It was so scientific in its data that it made immediate appeal. It took precedence over the killing of microbes that had already gained entrance into wounds, and carried the surgical world back in memory to Holmes and Semmelweiss who fortunately had left records, but who had not developed a technic which would have established their position as practical pioneers.

That sort of thing belongs to common history. A good idea will blow about for years until some one comes along with a hammer and nails it down. It is commonly said

that in olden times a man could not gain acceptance for new ideas during his lifetime. Sometimes they even made that lifetime short for him. Later the time of acceptance was placed at thirty years (a new generation). Today not more than five years may be required for demonstrable data to become accepted by potent minorities at least. The change in the course of fifty years has been from active obstruction to innovations, to that of difficulty in getting data noticed at all.

Wound infection not only does come from contact but also from the air, and I have stressed the point that this latter feature must be taken very seriously into account by surgeons who leave an open wound freely exposed during a too lengthy operation. The chief source of infection unquestionably is from contact, but Petri dishes of culture media when exposed to the air in an operating room quickly grow cultures of various microbes. Even though they are not of harmful kinds chiefly, that fact does not allow us to escape from the question of harmless kinds outgrowing the harmful ones under Petri dish conditions. Under wound conditions other kinds may dominate; otherwise, we would not need to keep an erysipelas case out of the surgical ward.

In 1884, Bellevue service completed, I decided to go to London to watch Lister at work. What was my surprise to find that he was still being assailed with asperity. His methods were by no means generally accepted by his British confreres.

Antagonism was so frankly outspoken as to be painful to me and it even seemed wiser to avoid bringing up his name when visiting other surgeons of note. Aside from Watson-Cheyne, Ogston was the only one to whom I remember speaking who had a really generous word for

Lister. I learned later that he had a few distinguished followers and at his clinics there were frequently three or four visiting British doctors. They stood closely about the operating table in their customary long black broadcloth coats with velvet collars, while an attendant went about the close and overheated room spraying carbolic steam—not only into the air but directly and abundantly upon these black and dignified broadcloth coats. Had any one of these doctors met a polecat on the way home I have an idea that it would have recognized a peer.

Whenever in the course of operation Lister announced some finding, a sleeve would be pulled up by one or more of the visitors and a forefinger outstretched for entrance into the wound, that being a courtesy that was of standard observance among surgeons in all countries in advance of the day of antiseptic surgery. When the privilege was denied by Lister, a clearly hurt look and one of discomfiture was apparent in the faces of men who had for the first time in their lives met a rebuff of that sort.

Lister at his home was a man of heavy British dignity, courteous to the last degree but never affable, and his infrequent smile was shallow and conscious. He had a small hand that was almost feminine in its softness, and in contrast with his determined masculine mien and set features.

There was so little of antiseptic surgery to be seen in London that I went on to Germany. Lister's purely scientific basis for antiseptic surgery had captured the imagination of Germans and was drawing Russians and Japanese to their clinics. Fortified with that powerful means, Germany had quickly sprung into leadership of the entire world in every known branch of surgery with the exception of mechanical orthopedics, in which America was freely recognized as being the leader.

Science was the engaging order of the day, a veritable fetish, in the Scandinavian countries and Austria as well —with one notable exception: Billroth was asked to go down to London and learn the Lister method of wound treatment. He asked why Lister should not come up and learn Billroth methods. It was some years later, after German surgeons in general had accepted the germ theory of infections, that Billroth himself finally became fully convinced of its merits.

France, the home of the prophet Pasteur, was at that time as far behind in antiseptic surgery as was England, the home of the prophet Lister. Then and in later years I was invited to address the classes of several of the European surgeons and to give demonstrations relating to American methods.

Upon my return to New York I found that bitter controversy was still raging in America over the subject of antiseptic surgery. For example, one master surgeon and high authority, Dr. Stimson, the austere, said that Listerism might perhaps have place somewhere but it certainly did not belong to his special field of bone surgery.

Dr. Thomas W. Harvey of Orange, New Jersey, who has followed up all movements in the profession for many years, writes me that the first demonstration of Listerism that he saw as a student was given by Dr. William Detmold in 1878. The operation was an amputation of the breast, and Detmold had the carbolic spray going over the operative field. When a towel dropped upon the floor he picked it up and tucked it back into the wound, but he had demonstrated the theory and technic of Listerism. Even among its would-be supporters there were many men who had grasped the principles but did not know how to carry them into practice with success.

So, fresh from Europe, I sat right down to a duty task and in a week or less tossed off the material for a little brochure entitled *How We Treat Wounds To-day*. Before offering the manuscript for publication, I consulted Dr. Shrady, Editor of the *Medical Record*. He advised me in a fatherly way not to publish the book. He said that it would hurt me with the sort of men upon whom a younger man was to look for advancement and security in professional position. The manuscript was then taken to Dr. Weir, who said, "Publish the book but be prepared to take the consequences of your show of syllogistic fists." That sounded like good sport of the football kind.

The book went rapidly through several editions and into French and Russian translations. It was adopted by our Surgeon General's office at Washington for use at Army posts. Some of the notices appearing in the medical Press of that day show how it was received:

"This book is rich in bombast, but destitute of any practical value." *Medical Bulletin,* November, 1886.

"The book is so thoroughly practical that it must be commended to those who wish to acquire an exact knowledge of the details of antiseptic treatment." *Boston Medical and Surgical Journal,* 1886.

"This beyond doubt is as contemptible a book as was ever written for medical men. The style is such as would be expected from an ardent partisan with little knowledge and bad taste." *Medical Herald,* November, 1886.

"Mais ce rapide appercu ne peut donner qu'une idee fort insuffisante de ce precieux petit traite, et nous ne saurions trop en recommander la lecture." Revue de Chirurgie, December 10, 1886.

"A prominent example of superlatively bad style and

sophistical reasoning." *Southern Practitioner,* December, 1886.

"The plan of the volume is capital. Every page abounds in practical hints from an evidently practical surgeon." *London Medical Press and Circular,* June 30, 1886.

Dr. Shrady had been quite right in his prophecy. Two or three physicians of established position who had seemed to be on the point of asking me to share their offices hesitated about making a definite offer because of my display of radical attitude and because of its repercussions.

CHAPTER V

TECHNIC ADVANCES

AS EARLY as 1800, Humphry Davy wrote, "As nitrous oxide appears capable of destroying physical pain it may probably be used with advantage during surgical operations." In 1818 Faraday wrote, "When the vapor of ether is inhaled it produces effects very similar to those of nitrous oxide." The medical world, however, paid no attention to these suggestions until a British surgeon, Dr. Henry Hickman, in 1824 published a pamphlet showing that "suspended animation" brought about by the use of nitrous oxide had been safely employed by him in operations upon animals; as a result of such experiments he believed that it might be used for the human subject. Investigation of his idea was not made by the medical profession—perhaps because of fear that suspended animation might remain that way and would be placed directly to the responsibility of the physician. In 1842 Crawford Long employed ether in surgery and two years later Wells used nitrous oxide. Morton used ether in 1846. Hickman is really the father of anesthesia although his work went without recognition.

Fifty years ago the subject of anesthesia was still in its infancy, and there was endless controversy over the relative merits of ether and chloroform. In this country consensus of opinion in the North had settled firmly upon

ether as the best and safest anesthetic. In the Southern States conviction was equally strong in favor of chloroform. Europe was experimenting, but chloroform had the lead and entered more largely into mixtures that were being tried out for making blends in discomfort. Ethyl chloride was then used only as a freezing agent for local anesthesia when splinters had to be removed from children's fingers and when abscesses were to be opened. We knew nothing of the modern local or regional anesthesia with various anesthetic agents injected into the tissues.

In 1884 I was a member of the audience in Berlin when Karl Koller gave his first public demonstration of cocaine as a local anesthetic in eye work. It immediately caused a sensation and various experimenters began to extend its application into the enormous field which it came to occupy later. In America Dr. W. S. Halsted became the leader in this experimentation.

Had Koller been moved by commercial motive instead of by the ethical principle of giving every medical discovery to the profession and to the public he would shortly have become a millionaire. Where is his pension? I am fully sympathetic with the ethical principle, but sometimes wonder if it might not be allowable for a committee of the American Medical Association to investigate the questions in a case like that of Koller and officially allow him to receive a small royalty as honorarium to be added to the honor of making a discovery of such tremendous importance to the world. The stimulus might eventually mean still more service to mankind and to the profession. I have had the privilege of following all steps in the tremendous changes resultant upon Koller's discovery of the local anesthetic effect of cocaine.

It was well toward the end of the nineteenth century

before the influence of men like Bennett in New York and Allen in Boston had resulted in placing administration of anesthetics upon the plane of a high-grade special occupation.

At a time when ether was held to be the safest anesthetic in the North and chloroform was the one of choice in the South, we made a sort of compromise and got to believe that chloroform was safer for children. It was the pleasanter one for them to take, and that warped our judgment. On one occasion when lecturing to the class at my clinic while a child was being anesthetized (by an assistant) for a bow-legs operation, I had just described the safety of chloroform for little folks when an observing member of the class called out that he believed the child on the table to be dead. Such was the case. She remained dead for several minutes before we finally got the heart started into movement again. Fifty years ago there were many deaths from chloroform in dental chairs because the patient was seated in an upright position and only a light degree of anesthesia given—two very dangerous mistakes. The shock of pulling out a tooth then stopped the heart and dentists were not equipped then with resources for starting it into action again.

On one occasion a patient of a friend of mine wished to have a flexion of the uterus straightened and a stem pessary introduced. Her husband was opposed to having any such work done and had said so very decisively. One day the young lady sent word that her husband was away and if we could come over and use chloroform which would leave no odor in the house it was her wish to have this minor operation performed. The doctor and I were both young and rash at that time. Just as the stem was being introduced into the uterus, my friend called out

that the patient's heart had stopped. There followed fully ten minutes of highly active resuscitation effort before we heard what seemed to us the sweetest sound that had ever come to our ears, a slight voluntary movement of breathing followed by full recovery fifteen minutes later. The husband never knew of our visit and the patient never was told of her peril, but there were two young doctors who knew all about it.

Great changes have taken place since then. Today the safety of anesthesia has reached such a point that the taking of anesthesia is almost a luxury excepting where prolonged surgical work introduces some unusual feature. Even then the question is more often one of discomfort rather than one of actual danger. Furthermore, the methods of local, regional, and spinal anesthesia have disposed of even the discomforts of general anesthesia in many fields of work. Fifty years ago, agents from drug houses would persuade the purchasing officials for hospitals that other kinds of ether were just as good as Squibb's product and much cheaper. The doctors had to make large outcry before the purchasing officials would listen to us, and they came to us with plausible explanation for other kinds of ether being just as good. We knew!

The Roentgen ray did not come to us until 1895, but the present generation of doctors appears to assume that people were always transparent for us. When the X-ray came into use as a diagnostic resource it was for surgeons what a stereoscopic view of the soul would have been for theologians. We worried overmuch about fractures when the picture showed ends of bones out of line—and we forgot that these ends had wonderful ways of getting together in the days when we could not see them. One of the first cases that came to me for X-ray examination was that of

a hand injured by a charge of bird shot. The hand was badly crippled because of shot invading the articulations. The pellets were too small to be located by touch through incisions until a picture allowed me to mark the skin over each shot, and go directly to it. The "before and after" pictures of this hand were hung upon the wall of my office for a while, but attracted so much attention that it seemed best to put them away. Today they would be looked at by hardly anybody.

One of my early X-ray patients was a fine young woman, a Christian Scientist, who had held a veil pin between her lips while dressing for a ball. Someone had made her laugh and the veil pin was inhaled down into the left bronchus and a short distance into an ascending branch of that bronchus. It could be clearly outlined and located with the fluoroscope. I asked an instrument maker to make quickly a special alligator forceps of extra length. Local anesthesia was employed—a buttonhole was made just above the sternum into the trachea and the bronchi then sprayed as far as possible with cocaine solution. I said to the young lady, "If you cough when the instrument is inserted, it may puncture a bronchus, and make trouble." She replied in a positive way, "I shall not cough!" I had confidence in her Christian Science but all of us were holding our breaths. As the alligator forceps was inserted, Dr. Ludwig Kast and I could watch its progress down, down, down, clear to the pin—requiring very cautious manipulation. When the jaws of the forceps opened at the right spot in the scene Dr. Kast, who had a better view, exclaimed that the pin was in their grasp. Up it came and out. The patient returned to her home in Massachusetts five or six days later, all well. I forgot to

present a bill for that case and hated to render one when the people asked for it later.

I do not quite understand why any of us older surgeons stayed alive previous to 1897 when Behring's diphtheria antitoxin turned a hose upon that awful fire and knocked it down to smoldering cinders. One of our commonest operations before that time was tracheotomy for diphtheria patients who were smothering. The moment that a deep breath could be taken by the patient, there was a spasmodic cough that blew bits of the membrane into our faces unless we were on guard. It was not an easy matter to remain on guard if I had to do a tracheotomy at midnight upon a chubby neck among tenement bedclothes—with no assistant except a trembling mother, holding a kerosene lamp in one hand and one of my retractors in the other hand, while I kept an eye upon the chloroform mask that was held by neither one of us at the critical moment of opening the trachea.

My assistants were beginning to be modern, and instead of asking one of them to be up at that time of night for a case that would pay little or nothing, I preferred to do the work myself—just as it was done by all of my old-fashioned contemporaries in those days. I knew of only four or five doctors who caught the dread disease under such circumstances, and might give credit to a Higher Power for sparing lives excepting for the fact that it was the very best ones among us who were stricken and died. Not long ago when planning to have a child's throat steamed with vinegar for a membranous tonsilitis, I absent-mindedly asked the mother to get her croup kettle. She did not know what was wanted. Mothers knew what a croup kettle was before the days of Behring.

The employment of vaccines as applied for infections

belonging to the field of surgery was wholly unknown during my student days. At that time, "vaccination" was applied empirically for the prevention of smallpox only. We did not know the why of its action. Its general employment was based upon the almost accidental observation made by Jenner, who found that inoculation with cow pox worked just as well and was safer than that with smallpox—the latter very ancient vaccination having been introduced into Europe from Constantinople earlier by Lady Mary Wortley Montagu.[1]

Nowadays we use vaccines understandingly, knowing not only how they prevent many kinds of disease, but also how they control some diseases after they are under way. The subject has developed with such rapidity that thousands of well-educated physicians have been too busy to comprehend the fascinating subject, or to foresee the new fields into which vaccines may extend. During the present stage of our progress much harm is being done by the indiscriminate or ineffective employment of this tremendous power.

Let me here explain, in a word, vaccines and serums. The fact that they were so recently more than a matter of ordinary fact will surprise tomorrow's doctors.

Vaccine treatment means briefly a planned introduction

[1] Overshadowing this contribution by a layman to European medicine was the work of Pasteur, who likewise was not a physician. The last word in revolution of medical thought is now coming from a doctor of philosophy instead of from a doctor of medicine. Dr. Wilder D. Bancroft of Cornell University has apparently discovered that narcotic addiction and insanity often have similar physical basis in a change in the brain proteins. Both conditions now appear to be curable over a range never before comprehended or contemplated, and State hospitals which have long since been changed from mere institutions of restraint now seem destined to shrink still farther out of the taxpayers' appropriation list.

Schaudinn, who discovered the cause of syphilis, was a zoölogist and not a bacteriologist, the latter group having missed it—just as botany missed opportunity to take over the whole subject of microbes and in that way, perhaps, lead all other sciences of today.

into the body of a certain kind of protein preparation of some particular organism which can cause a particular kind of disease. This material which the doctor introduces has been previously prepared in such a way that it does not quite cause the disease, but wakes up those special-purpose body cells which have the business of fighting that particular kind of disease if it should appear. The awakened body cells immediately secrete ammunition in the form of a ferment, and this will destroy the kind of inimical material which the disease itself would introduce. This defense ammunition which has now been manufactured by the patient's own body cells is afterward kept in stock in the blood of that particular patient for use in case the microbe causing that particular disease ever tries to attack that individual. The body cells having been forewarned by the vaccine became forearmed with defense products.

The development of various serums has kept pace with that of vaccines. When an animal has been inoculated with a given microbic poison, the body cells of that animal immediately go to work at manufacturing defensive material which remains in the blood serum. We then take the loaded serum from one individual and inject it into another needing it. It is a fortunate thing that animals may serve our purposes for manufacturing protective serums and vaccines that are to be used for mankind. Fifty years ago these animals belonged to laboratory work only, but now they are raised and trained by the hundreds by commercial houses which furnish the defensive materials wanted by doctors.

A vaccine arouses defense; a serum carries defense materials that result from an arousing. That's the difference!

If some Rip Van Winkle of even the Nineties were to appear at a meeting of the society representing almost any branch of medicine today, he would understand only a part of the language and might not know off-hand what was being talked about at all. Bacteriology as an applied science has run parallel with medicine in a fifty-year race. The runners in the study have been too busy to stop and write its formal history. Now they are beginning to be cut down by the Reaper, but some who are still with us have arrived at the years of peace and with dramatic memory. If not one of these men writes the history of fifty years of bacteriology in its relation to medicine, the calamity will be comparable to the burning of the Alexandrian Library by Omar.

My old friend Dr. William H. Welch reminds me that the germ theory of disease in general medical practice was received with general skepticism and even ridicule at the time when he began work in the pathological laboratory at Bellevue Medical School in 1878. This ridicule belonged not only to the rank and file but also to leaders of the profession in our colleges at that time. Dr. Austin Flint, Sr., was a notable exception, according to Dr. Welch. He was one of the first to recognize the part played by the bacillus in cases of tuberculosis. Discovery of the tubercle bacillus in 1882 by Koch had filled Dr. Flint with enthusiasm because it confirmed Laennec's theory of the unity of different phases of the disease.

Dr. Welch had come from Cohnheim's laboratory in Breslau, where he had been associated with Weigert and Ehrlich. He was thoroughly familiar with the new work that was being done in Germany, which was at that time leading all countries in medicine. He demonstrated the tubercle bacillus to students in 1882 in the course of his

lectures on pathological anatomy in connection with Dr. Flint's course. Dr. Welch by temperament was quite able to hold his position on the germ theory good-naturedly at times when he was being looked at with a lorgnette by the profession. At the same time he exercised a charming skill in dealing with the psychology of doctors in such a way that he held all ground as rapidly as it was captured. There is something more than scientific knowledge required in order to secure and hold attention.

CHAPTER VI

HOSPITALS BECOME RECOGNIZED AND GROW

ONE of the very greatest changes that I have observed in the past fifty years has been in the attitude of the public toward hospitals. Dread of them was general and well founded before the days of antiseptic surgery. But with its widespread adoption, fear faded rapidly from the lay mind.

In the Seventies, Von Nussbaum, having a 79 per cent surgical death rate in one year, decided to do no more operating in hospitals. The maternal death rate in such public institutions was frightful. All over the world, the very name hospital suggested pestilence or insanity; few people would go voluntarily to such a place, no matter how well equipped it was for doing routine work efficiently. Today, almost everybody with any illness at all serious wishes to go there.

In the Eighties and Nineties the personal element entered more largely than it does today, into the imposing affair of a surgical operation. Operations were done at the homes of people so frequently that the whole family often went into conference in regard to the advisability of a surgical procedure. It was not unusual for some dominating member of a family to feel that he should instruct the surgeon in what he should or should not do,

quite regardless of whether that member knew anything about surgery or not.

All of the New York surgeons were doing a large part of their work at homes of patients at that time, partly because of the lack of hospital facilities and perhaps more particularly because people had not as yet begun to think in terms of hospital. When anything so serious as a surgical operation was to be done, "patients must surely be right where they would be surrounded by members of a devoted family." Almost anything else was unthinkable in those days. A husband, a wife, a dear child among strangers in time of greatest need for tender sympathy? Never! People have now at last come to know that science is more kindly than kisses, but they had first to stop and think, a procedure that has wonderful results whenever people take the time for it. The surgeon, as advocate, sometimes had to face a jury of twelve people ranging in ages from nine to ninety carrying opinions that were masculine, feminine, or neuter in character, all of which must be brought to a single focus of agreement. This did not occur where a family had full trust and confidence in some capable family physician who had sent for the surgeon. There were many families however which had no such reliable guide, or perhaps did not trust him implicitly for one reason or another. In Roman Catholic families the priest was ultimate authority and his decisions were obeyed to the letter. Sometimes in Protestant families a clergyman was called in to pray for guidance before the arrival of a surgeon.

All of this comes back to me as more or less of a nightmare. A surgeon nowadays after doing half a dozen major operations in succession at the hospital may congratulate the wrong set of relatives by mistake on his way out

through the waiting room. We may rest assured that nothing of that sort happened in the Eighties or Nineties.

Many families had never had occasion—or did not know how—to select a trustworthy or capable family physician. Having made wrong choice of financial advisers a few times, they were not trusting much of anybody very far in any kind of profession. This matter of selection of a competent or incompetent doctor was by no means confined to any one class of people.

Some families noted for general sapiency are still being cared for by physicians who have given more time to social diplomacy than to professional erudition and their deficient efficiency has amounted to a scandal in some of the courts of Europe. Farther east, at the same time, the king of Siam is gaining international renown for his careful selection of physicians along with advisers of every sort. As a matter of fact, it really was difficult for the layman to know where to look for guidance in medicine until we developed The American College of Surgeons and the American College of Physicians in this country. Members of these bodies can at least act in responsible advisory capacity, because they have been selected for, as well as elected to, membership, and the layman may easily learn of these memberships.

In 1882 there were few hospitals outside of the largest cities, and, even in America, we had little suggestion of the enormous institutions that today call for technical experts in architecture for their construction, to say nothing of equipment. That subject in itself has become a specialty with its own voluminous literature. Today in even the smaller towns there are hospitals throughout the land. Many of these, though small, are nevertheless quite up-to-date in management and facilities.

In 1882 there were about 200 hospitals and allied institutions in the United States. In 1924 there were 6,762 on the registered list of the American Hospital Association. As late as 1900 there were only 150 clinics with facilities for teaching in the United States, but in 1925 more than 5,000 were listed.

In 1882 there were almost no private sanitariums excepting a few for drug addicts, mental defectives, rheumatics, or some other special group of patients. There were no hospitals in that day to which anyone not a member of the staff could take patients. There were none of the numerous fully equipped sanitariums that today are found in all parts of our cities. The few surgical cases that came to me were at first cared for at the homes of patients where we set up a cumbersome but good enough temporary equipment for carrying out antiseptic technic.

In 1882 there was only one pay clinic in New York so far as I know—perhaps hardly a clinic because attendance on the part of students was not organized. The Out-Patient Department of the New York Hospital charged patients a regular rate of one dollar for entering their names on the register. I worked there as assistant to Dr. Robert Abbe, but have forgotten just how subsequent charge was made after the first entry of a name. It may have been a dollar for each visit. Some of the dispensaries made a charge for medicine if people could pay; and sometimes these patients were diverted to the private offices of dispensary doctors who charged them very small fees or perhaps nothing at all if the cases were wanted for purposes of study. Some of the people who sought free treatment at the dispensaries could really afford to pay well, and a few of them, as we came to know, were prop-

erty owners with real estate and other results of thrifty habits which had taken them to the dispensary.

Later development of what is now known as the pay clinic has aroused much discussion. The formation of a group clinic where a patient may have the benefit of diagnosis on the part of many men of special training belongs theoretically to a sound movement. This elaborate investigation is naturally expensive. If a pay clinic can give such service to the poor at a low cost, a high degree of public service is rendered. The service it seems to me should relate to diagnosis chiefly.

There is an old saying that any sort of doctor can treat a case if he only has the right diagnosis. This is nearly correct. Most cases of chronic illness are treated upon an incomplete diagnosis, symptomatically rather than fundamentally. There is need for a low price clinic to which a physician may send his patients, and thus avert the objectionable features of competition with physicians who have their own equipment. Physicians of dignity, skill and sympathetic bearing have, however, little to fear from any sort of competition. Perhaps the pay clinic will help to avert socialistic features going with State Medicine.

The Cornell Clinic has never accepted the idea that it should be a purely diagnostic clinic or a special treatment clinic. Many patients sent for diagnosis by physicians are returned to the clinic by them with a request that treatment be followed up. This kind of relation between outside physicians and the Institution would seem to be a most commendable one—and does not introduce the feature of competition. In 1929 only 41 per cent of cases had come from Manhattan, and about one-fifth of the patients had been referred there by physicians. In-

vestigation has shown that some 90 per cent of patients entering Cornell Clinic were really of the economic level that they had stated. Every patient is asked if he is under the care of a physician or has been within the previous six months, and in such case the patient is accepted only when the doctor sends a letter or telephones his approval.

In 1900, the question of "open or closed" hospitals arose. The increase in the number of hospitals brought about increased prestige for men occupying responsible staff positions, and an inevitable conflict between the "ins" and "outs" appeared. The best hospitals were carefully organized and "closed" with a select staff. Equally good men having no such hospital connection became the "outs." The doctors in a closed hospital secure and hold position upon a basis of recognized merit only. If anyone who was not a regular member of the staff in such a hospital were to give orders to nurses and assistants, there would naturally follow the same confusion as would occur in a railroad office under parallel conditions.

Doctors who are still complaining about the injustice of a closed hospital system which keeps them out are quite at liberty to mass their forces and secure the erection of any number of so-called open hospitals, some of which will certainly render excellent service. Open hospitals will at least give an advantage over home treatment, because of the advantages offered by laboratories and hospital nursing service. The same service at home is less efficient and more expensive.

The way in which a college chum of mine, William S. Edwards, built up his corporation law practice serves to illustrate, in a nutshell, the open hospital question. He paid his way through law school as court stenographer, observing practical methods of legal procedure. He became a State Senator later and a corporation lawyer of

note. Young lawyers went to him at times and asked for the secret of his success in obtaining so much corporation practice. His reply was that there was no secret about it at all. He made the corporations himself!

The absence of any hospital at Ithaca caused much loss of time and wasting of effort on my part. Facilities were cramped when doing surgical work at the homes of patients. I had urged the physicians to talk with wealthy men of their city and secure means for building a hospital but they all seemed to be afraid to do so. I was too young to understand the local doctor's feelings at that time, but in later years and having men of large means in my own clientele who were counted as personal friends I have frequently been asked to go straight to them as a matter of duty and place them upon some list of "prospects" for contribution toward a worthy object. When any physician has secured the confidence and friendly companionship of influential men, the idea of exploiting that relationship for even the most worthy cause is revolting. Such people are always targets for incessant appeal from many directions anyway. A valued friend may be chilled if we volunteer to instruct him about his duties toward any great project.

One day I set out definitely with the purpose of getting local folk interested in the hospital plan, and in that one day obtained promises of support which sufficed at once to get the project under way. One of my old college friends offered to give us a building and grounds, which he did—with others of his family. One citizen who was skilled at keeping his wealth intact averred that the doctors had always managed to get along without a hospital in the town—"why have one now?" He later joined in the movement and gave handsomely in his own way. Details of the matter were taken in charge by earnest and

efficient Ithaca citizens of the sort who invariably appear anywhere when need for public service arises. It was not long before we had a Memorial Hospital at Ithaca and later on a College Infirmary which gave opportunity for up-to-date work.

The first meeting of the hospital committee composed of a number of prominent Ithaca citizens was held in the Library Building on January 29, 1889. The minutes relating to various meetings of this committee and recording the names of all who were active in forwarding the project are now in possession of Mr. Robert C. Osborn, Secretary to The Ithaca Memorial Hospital. It was not until January 1, 1892, that the formal opening of the Hospital took place. Ward beds were $1 per day and private rooms $2-$3 per day. The matron, who was also head nurse, was paid $40 per month and the first assistant nurse $30 per month. The second assistant nurse received $8 per month. All of the nurses had received practical training at other hospitals, but it was before the days when registered nurses were talked about. The cook received $3 per week and the janitor was paid $8 per month.

The tremendous amount of work done by all of these people with head, heart and muscle, day and night without regard for hours was typical of that Victorian day. Days-off were neither asked for nor desired. Too much to be done! A spirit of service to others gave life-joy that called for no external amusements.

Our hospital work increased to such an extent that Ithaca might rapidly have become a clinical center of unknown proportions. It was often necessary for me to do ten or twelve important operations or even more in the course of a day's work. Our statistics were such that

records for two years showed the surgical death rate at the hands of all of us to be smaller among patients undergoing major operations at the hospital than among well people who went sailing on the lake. Executive ability, however, was lacking in the sort of dreamer that I have always been. I had a continuous desire to give up this out-of-town distraction in order to remain closely in New York.

There, subsequently, I again meddled with hospitals, trying to bring about two mergers. One of these is already accomplished by others—that of bringing the New York Post Graduate Medical School and Hospital under University control. It has now become an integral unit of Columbia University. It was one of my ambitions to have it turned over to Cornell University along with a half dozen smaller hospitals—all of which had annual deficits. They were running at a loss in efficiency as well as in finance because of the need for so many superintendents and boards of managers. They were not serving well a subsidiary purpose as clinical teaching institutions because of distance from each other and lack of contact with any central directing institution. I had personally secured the consent of officials in all of these hospitals to have a merger brought about and President Schurman of Cornell took the matter seriously under consideration, but at that time money could not be found for completing the project.

The other hospital merger which I proposed—that of the union of Broad Street Hospital with Beekman Street Hospital—is being talked about again. Upon retirement from Post Graduate teaching on age limitation in 1916 I accepted a position as Visiting Surgeon to Broad Street Hospital. I at once saw possibilities that were favorable

for development of the largest hospital in the City except those belonging to the Department of Public Charities and Correction.

Broad Street Hospital is situated close to the focus point of transportation from all of the Boroughs of the City—all parts of the United States and all parts of the world—by land and by sea. There is practically unlimited room for expansion over a whole city block, with Battery Park close at hand for convalescent patients, Jeannette Park to the east to insure sunlight for hospital windows, and during the summer, prevailing southwest breezes from the sea. In winter it would be shielded from other winds by skyscrapers that tower high in lower Manhattan. The larger hospital might serve not only the poor of the district, but also the many rich in the office buildings of the wealthiest part of New York. Many times in the course of every downtown business day, some of these thousands require emergency attention. In addition, I felt that private patients who come "from everywhere" to New York would come to Broad Street in particular, once it had grown to the right proportions. I suggested that Pier Four be converted into a pavilion over the water for convalescents, and I offered to decorate Jeannette Park with trees and shrubs at my own expense. Many a time I have walked out upon one of the spacious East River docks and looking back at the old hospital have pictured what might be and yet may be.

With the increase and enlargement of hospitals—the business of nursing took on new hope—it began to pay. It was a member of the laity—Florence Nightingale—who introduced a trained nursing service for hospitals in England in 1860. A dozen years or so later a nurses' training school was established at Bellevue Hospital in

New York; Massachusetts General Hospital in Boston; Connecticut Training School in New Haven, and at Orange Memorial Hospital, New Jersey. We must not for one instant forget that among "untrained" nurses of the old-fashioned sort there were certain ones with exceptional skill and ability—your own mother, for example. There were a great many mothers who, as widows, became dependent upon their own earnings—and many others of motherly type who took up nursing because of natural love for the work. Many of them became so expert and well informed that a young doctor had to mind his step. I learned much more than I really care to admit from some of the nurses who had to make way for science later.

When making the note that my classmates at medical college had chosen their life-work largely because of a call, I wondered whether trained nurses of that day were prompted by the same spirit. I inquired of one of them who had been in Bellevue Hospital forty-seven years ago, and her reply in substance was this: "I really feel that most of the nurses today are tempted by the large payment which they receive, but in the old Bellevue days a love for the work was the impelling motive as a rule. It was a call to help humanity in a new field that was then just being opened to women."

I then asked a more recent graduate from a training school for her response to the same question. The reply was, "It is impossible to generalize. Nurses today are moved either by the economic motive or by the spiritual motive or by both combined. Much depends upon the locality from which they are drawn. The Canadian group in particular seems to go into training for economic rea-

sons and yet this group has become notable for efficiency in service."

Not only skillful doctors but also especially valuable nurses may be withdrawn like gold from actual circulation. I recall one particularly pathetic instance. A patient who insisted upon my making daily calls and who offered to pay double fees when I tried to beg off on the score of being busy was very difficult to dispose of in any customary way. She returned promptly from the first health resort to which I sent her, and brought back in addition to her own symptom a collection of other symptoms obtained from the sunshine room coterie. The next thing was to send her away somewhere for climate, but that meant a trained nurse.

I thoughtlessly selected one of our very best of younger nurses who had shown particular skill in adaptation to difficult work. I soon began to hear from the nurse. She could not bear to waste time on a patient who had no serious trouble, but the patient had persuaded her to stay for another month. At the end of that time the nurse was offered double pay if she would agree to remain a year.

Then began real tragedy. The nurse had gone into her profession because of natural love for being of service to people in trouble. Her ideals were wholly along that line but she was helping a younger brother to obtain an education. For his sake she felt obliged to give up ambitions and take a year out of her real life purely for the sake of gaining money. Nothing could have been more distasteful to her. At the end of the year the patient offered her princely pay if she would remain permanently as companion and promised that she would be made beneficiary in a will. I have never ceased to feel guilty for diverting that valuable life into uselessness.

CHAPTER VII

THE DOCTOR OF THE EIGHTIES

CONDITIONS as I found them when first having my professional harness adjusted must be described with more or less abrupt turnings, because from 1880 to 1890 there were more varied features in my life than there have been in any decade since. I entered Medical College in 1879, graduated in 1882, finished my term of service on the house staff of Bellevue Hospital in 1884, and had returned from a visit to the International Medical Congress at Copenhagen and from European clinics by 1885. I had organized a hospital at Ithaca, accepted a teaching position in the Post Graduate Medical School and had been a delegate to the International Medical Congresses of 1887 and 1890. Memberships had been taken in a number of societies and my first book was receiving notices of two kinds—the spice of life!

New York was not the kind of town that it is today. Almost anybody taking a late afternoon stroll on Fifth Avenue between Twenty-Third Street and Central Park could count upon nodding to a dozen acquaintances—hat off to ladies—and stopping for a momentary chat with three or four friends, although stopping to talk on the street was considered improper in those Victorian days. Fifth Avenue is no longer the homey place that it was

fifty years ago—not even on Easter morning when everybody took a walk after church and we knew something about almost everyone we passed. There was no difficulty in crossing the Avenue on foot at any time, diagonally or otherwise. If the drivers of buggies, landaus, broughams or market wagons did not steer out for pedestrians their horses had sense enough to.

In winter, when snow was on the ground, a merry jingle of sleigh bells in clean air took the place of raucous toots and hoots that now indicate the approach of a smell and the whizzing past of a rocket on wheels.

In the Eighties and a little later there were notable salons in New York. Richard Watson Gilder and Ella Wheeler Wilcox, though far apart from each other in temperament, had lists that overlapped, so wide was interest in "the champagne of elevated conversation." Here and there small groups of the cognoscenti are still to be found—on college campuses particularly—but I fear that modern skill at bridge has ruined the salon as an institution in America for the present time at least. Conversation has been bridged by the Irishman's bridge that "kept the banks from one another."

Physicians of the Eighties went about in dark frock coats and silk hats. Only the more reckless of the younger practitioners, who were upon sure footing, had the temerity to go about in business suits. I remember Dr. Gaspar Griswold as being one of these. There was occasional relaxation in the form of a cut-away and its derby, but it was not until several years later that the daring ones wore business suits daily. In Europe, however, and among the older men in America, anything excepting frock coat and silk hat was unthinkable. At the operating table in hospitals, and sometimes in homes, if the surgeon was crude

in his manners, the coat was often removed or replaced by a gown of severe black mohair. In Europe, however, where it was felt that dignity should prevail in the presence of distress, the long black coat was retained as a matter of courtesy to relatives of a patient. This was particularly the case for operations in private homes where most of the surgery was done. In Paris, Pean even went further. He always wore a full dress suit in the Hotel Dieu operating room as well as in his private hospital. He allowed me to pull the sleeves above his elbows on one occasion, when they were certain to become badly soiled. One of the older German surgeons told me that the family of a patient would always prefer to pay for a new frock coat rather than to have him introduce the indignity of a gown or of shirt sleeves. We must remember that a surgical operation was a notable event and few were done. The occasion was theatrical in its nature and surgeons responded in kind, more or less.

The doctor's buggy of the country was largely replaced in the city by the doctor's chaise with calash top—a buggy top that did not fold when turned back. This sufficed to distinguish doctors from the common run of lawyers and things, quite as definitely as iodoform on the doctor's clothing ten years later served like an artist's necktie for off-hand identification purposes.

In 1880 we heard that the arc light would be a remarkable achievement if it could be made practical. Electric lighting was just getting fairly under way by 1882. In advance of that notable event, kerosene oil had fully replaced the "burning fluid" that as a boy I used to bring home from the grocery in a tin pail. Kerosene, for all its risks, was held to be worthwhile over non-explosive whale oil and candles that had allowed our

progenitors to obtain education and headaches. My old friend Mr. Charles Pratt, who had a subtle and nimble wit along with his almost uncanny wisdom, used to tell us after dinner that he claimed to be the greatest civilizer in existence. His invention of "astral oil, a safe kerosene, allowed the world to be obtaining an education after dark when otherwise it would have to be engaged in mischief."

Street lamps in New York were still lighted with gas in 1882, and the lamplighter went his rounds every evening with his flaming torch. Hold-ups in the dimly lighted streets were almost unheard of, but we were warned against going through some of the downtown streets after dark unless we were sober. It seems only yesterday that sparkling embers from a hurriedly lighted fire box were strewn along cobblestoned streets when the fire engine was hurled along by horses that gloried in a real honest-to-goodness run. They were envied and their speed emulated by various other horses attached to grocery wagons, loaded with eggs and bottles. Horses at hitching posts along the curbs got up on their hind legs to have a better view.

Doctors held to gaslight in the examining room for a long time after the incandescent light had been invented by Edison, because the electric light had a way of suddenly going out, and it chose critical moments for the purpose. I remember how thrilled we all were when Sawyer had succeeded in rebuilding the carbon film by filling the bulb with a hydrocarbon gas which deposited new carbon at thin points where heat became most intense because of increased resistance. We wondered what would be next in the field of invention. Several things came next!

Dr. Morton had a Gram electrical machine in his

office. I often went over to watch it in action, noting the psychology of patients in action in its presence. A friend and I decided to acquire all that was known on the subject of electricity, as it then looked to be a subject that might become well worthwhile!

About 1882, Dr. Robert Abbe put a telephone in his office and it was a subject of considerable inquiry in the profession. As his occasional assistant at operations in the homes of patients where other doctors were present, I was in position to hear their questions. Would people call him up in order to get advice and opinions without taking the trouble to go to his office? Would he charge for such advice? Would they expect him to go to the telephone at a moment when he was engaged in passing a sound through a tear duct? Would he be rude in refusing to do so and would people know that they themselves were rude when expecting him to do so? Was he called up unnecessarily at night? I remember one good old doctor who was particularly fearful on that point. He reminded us, as we all knew too well, that "when members of a family are about the house all day they may not worry particularly about some loved one who is ill. After midnight, when all is quiet in the house and almost everybody asleep, some member of the family will begin to have fears and to want the doctor. The effort to actually dress and go for the doctor would be a restraining influence, but if they could simply call him up by telephone and ask him to be the one to get dressed it was another matter." The old doctor was very sure about that.

My first offices were high up in the Cumberland Building where the Flatiron Building now stands at the intersection of Broadway, Fifth Avenue and Twenty-Third Street, and at 212 East Eleventh Street in the German

boarding house of Tante Niemeyer. It sounds very grand for a young doctor just entering practice to have two offices, unless one knows something of circumstances, which often go a long way toward explaining things in general. It was necessary to have an office in a polite neighborhood in order to please the sort of clientele that would theoretically cluster about me some day. At the same time it seemed likely that a less particular kind of people off on a side street somewhere would sooner pay a young doctor's living expenses with their small fees. This proved not to be the case. The uptown office paid for both in due time. The locality was still an "uptown" residence district in 1885. Opportunity had been taken to work as an assistant at the West Side Dispensary and it was the custom in that day for dispensary doctors to charge trifling fees or no fees at all for such patients as preferred to go to the doctor's office—or who were wanted for study purposes.

Down at the office at Tante Niemeyer's in East Eleventh Street, patients never came in. My sign on the door was of no more value than a fox trap in a church belfry. I had gone there to board and to have a little space for office room because my old chum, Harold Gifford, was boarding among Germans in order to get practice in speaking their language. It was a clever idea and just like him to do it. There was fine compensation in obtaining points of view of men who were merging into our New York civic mass and who spoke no English in customary conversation at table or elsewhere. Both of us had the stock college equipment in German and in French, and we could correctly ask in both languages, "Has your grandmother a large red axe?" But neither one of us

could sustain a conversation in slang and idiom which constitute spark plugs of conversation the world over.

At the Cumberland Building there was a large flat roof two or three stories above my office. My beautiful setter had plenty of room for exercising up there in addition to his romps along the street. Dogs were not allowed on the Broadway elevated railroad platform, but the man in the Twenty-Third Street ticket office afternoons was a medical student earning his way through college, and we got acquainted when I noticed a pterygoid bone in his cash box one day. After that he did not see my setter if we went in the rear car.

It was several weeks before my first "good" patient appeared. It was an emergency call to see a well-known architect with rooms in the same building, who felt that a malarial chill was impending. He informed me that he could not take quinine in any form or, in fact, any of the remedies that I could suggest. It was a most confusing and distressing situation. A great deal of time and money had been expended upon my professional education, and there was a proud feeling that I was ready to apply the principles of medicine to almost any sort of case, yet, here at the very outset of practice was my very first "important patient" presenting conditions that were completely out of my grasp. I was long on science but short on art. There was a sickening feeling of discouragement in having to tell my patient frankly that I did not know what to do. His partner sent for a homeopathic practitioner who took charge of the situation. I was relieved at knowing that somebody at least knew what to do for a man needing help. But, I was chagrined because of the controversy between Homeopaths and Allopaths which was very violent in the Eighties.

No one except a few dispensary patients came to the office for a long time. Would I really ever have a case of any account? Where would that kind of patient come from anyway? Everybody seemed to be afraid of young doctors. How long would it be before a doctor could get over being young if he tried hard? I was exchanging friendly letters with some of the most famous men in the world, and had invented an orthopedic jury mast which had already been accepted in Europe, but that kind of distinction would not buy a lead pencil. How much longer would it be necessary to ask for a monthly check from home, now that "the education in preparation for self-support" had been obtained?

All at once there came in the morning's mail a letter from an old college friend in St. Paul saying that a business man from that city was on his way East in the hope of finding relief for his dyspepsia. He was coming to see me. Patient coming from a distance! That kind of practice belonged to great consultants! It really seemed very heartening next day to be actually going into the Fifth Avenue Hotel to see a man who wore an expensive suit of clothes and a necktie—a real necktie. My feeling was one of great responsibility and importance.

He stated that he had suffered many years with dyspepsia but without receiving any satisfactory treatment. It was high time for someone to get at the case scientifically. It seemed the part of wisdom to begin with something simple while details were being worked out and studied. In order to gain time and avoid making any mistake, I told him that for dinner that night he would be allowed nothing but buttered toast and kumyss. He remarked that he had never tasted kumyss, but I had no doubt that this delightful food beverage would please

him and keep his stomach contented until morning. This gave me time for thinking over points in the history that had been jotted down in my notebook.

Next morning the greeting was not cordial. My heart sank. Had the kumyss not done its duty? He growled that "it did not go." When he had stepped to the wash bowl to pull the cork out of the bottle, the cork came out too suddenly and he had jammed the bottle through the wash bowl. The hotel proprietor informed him that twenty-five dollars would be the cost for a new one. About one-half of the foaming fluid had burst over his wife's silk dress, and the cost to her for replacing it might be one hundred dollars if the stain could not be taken out. The rest of the beverage that had remained in the bottle upset his stomach and interfered with a night's rest. Farewell "good" case number two! He has since then been told, much to his amusement, of the rôle that he once played in a tragic drama.

After another series of dispensary patients, the third good case came as an emergency one. Some other doctor would doubtless have been called if he could have been found quickly. A young woman of the rapid set had held up a bottle of champagne at the dinner table while a guest from "the great open spaces where men are men" tried to shoot out the cork. A piece of glass had flown into the young woman's eye, causing a dangerous injury. This again was no kind of a case to be managed on general principles, the only sort that I possessed. Expert work was required and very promptly. We decided that Dr. Agnew must be called in consultation at once. I found him sitting with Mrs. Agnew at the library table in their home, and asked if he would kindly step into an adjoining room so that a cultured lady would not be

shocked by a champagne and revolver story. I was complimented by Dr. Agnew upon my nicety of taste; and he suggested that a cab be called, a luxury to which I was not accustomed—street cars were more to the point with me.

After he had seen the patient and instructions had been given, we returned to the good doctor's house and a very awkward situation then arose. There was no money in my pocket for paying the cabman. Nothing could be done about it, excepting to drive around until a friend was found who loaned me the money. Next day it seemed better to advise the patient to remain under expert treatment and to make a charge only for the first aid that had been given. These were the three first good cases of a young doctor and all of them failures, with nothing else in sight.

During the first three years of practice my income was derived chiefly from medical cases with a small amount of surgery. Most of the cases of both sorts came from the practice of some of the older men in the profession who gave me some of their work when they were traveling or ill or on short vacations. Very few doctors took any sort of vacation in those days, unless there was a reason that would sound plausible to their patients. A vast change has taken place in the habits of the profession since that time, and it is difficult to find an authority in New York during part of the summer. I recall an incident when the vacation habit was finally getting well under way. A lanky Englishman with a loud checked suit and a big cane dropped into my office with the remark, "Ow! I am glad to find some kind of surgeon in town at last. Everybody of consequence is away, you know."

When the advancing wave of oncoming business broke

over Twenty-Third Street, Fifth Avenue, and Broadway, sweeping away family homes and the Cumberland Building, which had been a residence apartment, I moved into the house of Dr. George Evans at 135 West Thirty-Fourth Street. There I shared offices with Dr. A. M. Phelps. It was not long before all three of us had to move up to 47 West Thirty-Ninth Street. One had to keep going physically as well as professionally in order to stay in the city at all, but we were at last in a restricted residence block which did not permit business to enter.

My next move was the rental of a brownstone house at 58 West Fifty-Sixth Street, and then arose the question of having an office apart from home in an office building for doctors. The idea of such a thing had been floating about in professional circles for two or three years, but no one dared to say that he would actually take part in any such innovation personally; his reputation might not stand it.

In some parts of the bold West venturesome physicians had already found that offices in such public buildings were often desirable, but there was no purely medical building in this country. In 1896 Philadelphia opened a "Professional Building" for physicians, including dentists. The idea of having a building devoted exclusively to physicians' offices had been in the air for some time in New York, but conservative members of the profession raised objections that carried a sort of finality. "All sorts of questionable characters would secure offices where they could be classed with doctors of standing." "So many signs in the windows would make it look like a shoppy business place." "A general practitioner could not have an office there because women patients in particular would not like to be seen going into a public building to consult a doctor." One thing said in undertones by doc-

tors' wives was that "they could no longer keep track of all of the queer folks who would go to their husbands' offices." This however would be counterbalanced in a way because bandaged people on crutches would no longer ascend the front door steps on the wife's afternoons at home.

Despite all these doubts, the old Madison Avenue Hotel at Fifty-Eighth Street was finally remodeled into a medical building, and about a dozen of us opened our offices there in the spring of 1904. It was named the Sydenham Building.[1] A committee of doctors was formed to pass on prospective tenants.

As had been anticipated, a number of undesirables hastened to apply for offices, and of the first fifty applicants twenty-eight were rejected. While so many offices were vacant the owner was much disturbed at our rejections, particularly when druggists, medical book sellers, instrument dealers, bathing establishment proprietors, and mineral water barons offered very high prices for ground floor locations. The owner was further tempted by unmarried physicians who wished to secure bachelor living suites in the building—but the committee disapproved.

There were no signs in the windows because we did not want tenants who needed them. Doctors who need signs need something more. Modest door plates or small neat uniform lettering on the glass on all doors gave an atmosphere of good taste. We had the quietest and most proper building in the neighborhood. This was appreciated so quickly that all of the offices were filled with physicians of standing. The Sydenham Building was a great

[1] Thomas Sydenham was a celebrated English physician (1624 to 1689) sometimes called the Hippocrates of English medicine.

success. Two maids in the ground floor hallway asked each caller the nature of his or her visit and which doctor was to be seen. The maids became very expert at detecting what was in the mind of a caller, and it was said that Margaret in particular knew whether it was oil stock or mining stock before an agent was through the doorway. Drug houses that sent detail men to "just go through the building and see 'em all" found that special appointments were necessary. A stock company was formed later and some of us took shares but did not secure a controlling interest.

After about twenty years of our occupancy of the Sydenham Building the business wave again swept away all of our polite surroundings. We were obliged to move our offices to new locations. It was something of a tragedy for us to give up the old building because there had come over us a sort of fraternal spirit that follows naturally when men of education become sufficiently well acquainted with each other. I went to the Medical Chambers Building at 114 East Fifty-Fourth Street, a cooperative enterprise in which occupants of offices were stock holders. Under management by a committee consisting of Drs. Lewis A. Coffin, Howard Fox, J. E. Wilson, E. P. Fowler and Duncan MacPherson, it was a profitable undertaking financially. After nine years of occupation of the building, business changes involving the locality forced us to migrate across Lexington Avenue to a new and larger building which we erected at 140 East Fifty-Fourth Street. We retained the name of Medical Chambers.

CHAPTER VIII

I DECIDE TO SPECIALIZE

THE young doctor, upon graduating from Medical College, swears by Hippocrates that his life will be devoted to the welfare of other people without regard for his personal advantage.

The practice of medicine is a game like golf or bridge, and must be played according to rules. The ideals of medicine are ideals of intellect, of character and of service. We cannot play our game well among the confusing opportunities for personal advantage today if we put aside these ideals and try in their place some individualistic plan or some captivating theory of self-expression.

After completing his standard preparation for work in our profession and leaving the hospital, a young doctor usually has to learn first to treat well members of the family of a patient, then the mind of the patient, and finally his or her illness.

Quite as great a change takes place with young internes on the house staff of a hospital. Under guidance by and permission of superiors they can go ahead without any particular feeling of responsibility while attending to routine methods for giving practical aid to patients. When out in practice later on and assuming complete charge of cases, their whole method must change.

The surgeon must learn at the outset of practice

whether he is equipped by nature for becoming a surgeon; next he will be obliged to learn by self-analysis the particular sort of surgeon he is likely to become. Is his forte the discovery of basic problems and the formulation of principles? Then research work of philosophic character will engage the latent tenths of his brain capacity. Does his mechanical talent make him the skilled technician? Then skilled technician he will be. Is he an essayist who makes critical analysis of surgical principles, as he notes their application to pathologic findings, and records his observations in the field of applied surgical science and art? Then he will be a publisher of contributions for the benefit of his profession. His mind may have scope sufficient in degree for comprehending all of these features of surgery, but time limitation will confine him rather closely to the development of those natural personal talents which belong in some particular field of surgical work. If he has a generalizing type of mind and organizing ability he may depend upon assistants to work out (under his direction) most of the features of a full surgical training, excepting those of skill and technic which are peculiarly personal matters. Is his interest one of pecuniary nature and desire for fame, then he will gain neither fortune nor fame, for these are incidental to the recognition of his ability on the part of his peers, and cannot be obtained without such recognition.

A physician is in position to see both sides of everything in human nature because ill people are off-guard and doing very little acting—the more serious the illness so much less of acting is there. He does not become cynical. In fact the general practitioner has no more fanciful views about human nature than the ornithologist has about the behavior of interesting birds and animals.

In the later Eighties I had about determined to make my work wholly surgical. No other doctor in this country had previously tried to do that, so far as I could learn, with the exception of Dr. Lange, who had brought over a German reputation and who added the medical features of venereal work to his practice.

In those days surgery was being done chiefly by two classes of men. Pathologic surgery with its tumors, hernias, gallstones, excisions of joints, and plastic work was almost wholly in the hands of masters. The family physician confined any surgical part of this work as a rule to emergency cases and to minor kinds of procedure not requiring the services of an expert.

It was in the decade after 1890 that surgery became rapidly split up into its various specialties. Before that time almost every surgeon included practically everything surgical in his day's work although in the Eighties the eye, like that of a crustacean, was upon its special stalk. Some of the leading surgeons of New York were asked their opinions of the plan. Dr. Stimson told me that he had always considered surgery, exclusively, to be an ideal sort of practice, but he did not dare to give up general practice in addition to it. Dr. McBurney said that some of the most interesting part of his work was medical in families that depended upon him, and he doubted if anyone could devote himself wholly to surgery. Dr. Bull said, "That would be interesting, but you will have to get your bread and butter out of medical practice, taking such surgery as gradually comes your way." Dr. Bryant said, "In my opinion you cannot gain the confidence of people sufficiently to get surgical cases unless you first secure that confidence through successful medical practice." Dr. Charles Phelps said, "It will be many years before your time can

be filled with surgery. There will be consultations with men of your own age, and they will ask you to do some surgery, but they cannot have the class of practice that will furnish an income sufficient for your support." Dr. Fluhrer said, "I would like to devote myself to surgery, but those of us who are engaged in that work are not fully occupied with it. Special work is so divided that we are all obliged to take medical cases."

While considering seriously this advice from men who stood in the front rank, and gradually finding that my surgery, if properly studied, really filled all the time, particularly if experimental work was being done, the idea of the desirability of doing nothing but surgical work continued to grow. A climax came in the latter part of 1889 when I had been up until four o'clock in the morning on an obstetric case and had a difficult gall bladder operation to do at nine o'clock. I then and there decided never to take a medical case of any sort again. How times and customs have changed since then! Hundreds if not thousands of men are now devoting themselves exclusively to surgery in its different branches to the exclusion of all medical work. As late as 1889 at least, only one man in this country apparently believed that it could be done.

Had I had a family to support at that time, it would not have been a safe procedure. I have never cared about income excepting for my family. There is as much joy and work to be had upon three thousand per year as upon thirty thousand if there are no other people dependent upon one's earnings. We pay for large incomes with corresponding discomforts and complicated responsibilities.

My general practice had included nearly every type of service. In ordinary eye work, my results were pretty satisfactory. But it was evident that one could not compre-

hend the whole of any field and do thorough work without dropping most of the other subjects and sending these other patients to authorities upon their respective requirements. Consequently my eye work was given up on moral grounds. If one lives in some part of the world where experts in a special subject are not available, then one has the moral right to do that sort of work without help—otherwise not.

In nose and throat work I devised several procedures that seemed to be ingenious, but other men could take better care of such cases and they were sent to these men. I had given much attention to developing orthopedic surgery through a natural bent that goes with Yankee mechanical instinct; but it seemed best to drop this because specialists who did nothing else could do better for these patients.

Genito-urinary work was extremely attractive because of my two wonderfully clever teachers in that specialty, Gouley and Fluhrer. It is so closely related to and involving so many of the principles of general surgery that it was the last special subject from which I cut away, although some of its operations belonging to general surgery continued to be accepted. Now upon retiring from practice there are no instruments that I fondle with more sentiment than the delicate ones belonging to that field, in which gentleness and skill count for so much—patient and surgeon both realizing it right on the spot.

The field of neurology and psychiatry was particularly fascinating to me because of its speculative side, as well as because of its bearing upon certain features of pathologic surgery.

When I did make the final decision it was difficult to give up general medical practice because every doctor

forms a circle of patients who have confidence in him. They believe that he can do things best for them. He himself believes that he can do certain things for some of his old patients that no one else in the world could do for them because he understands them so well, and he is quite right about it much of the time.

Any one who plans to take up a specialty should have had experience in all kinds of general medical work first, however; otherwise he will be a lame bird hopping on one foot, to paraphrase Sasruta whose bird with one wing was the man confined to one language. Any physician who intends to devote himself to surgery requires a knowledge of all other specialties. Such study will only temporarily interfere with his surgical career.

Here and there we find what might be called a rather unsatisfactory group of men who add surgery to general practice. Their hearts are not so much in the actual progress of surgery as in the economic progress of themselves. We find some very excellent work done by this class at times because personal interest is a stimulant of primordial origin and no mean degree of power.

I used to ask students at the Post Graduate about surgical conditions in their own towns. The reply was almost stereotyped. "Everything is all wrong in our town. Almost every doctor thinks he is doing surgery but hardly anyone is devoting himself to the subject in such a way as to become properly trained and proficient."

I asked a clever surgeon in a city of about one hundred thousands inhabitants about the present conditions in his locality. He replied, "Two or three of us who have taken the trouble to prepare ourselves for surgery have all that we can do, but that represents only a small part of the surgery that is being done. By far the larger part of the

operating is in the hands of men who don't know when or where to begin or when to stop with a case."

A certain prestige is popularly supposed to inhere in operative work, although this is a mistake belonging to the more or less crude stage of our present cultural period in the United States. In response to this popular misconception at least one half of the number of men on the average hospital staff feel it incumbent upon them to obtain the éclat that goes with operative surgery. Two results follow. Here and there a man of natural talent and mechanical ingenuity becomes ascendant and a valuable addition to the ranks of surgery, but many of the operators reaching their limitations quickly bring discredit upon the specialty as a whole. My good friend, the late Dr. Maurice H. Richardson, said it was a misfortune that so many people recovered from surgical operations, no matter what was done to them. It is the so-called morbidity rate or general knock-out, rather than the mortality rate in particular, upon which we are to fix attention when a question of the revolting present-day abuse of surgery is under discussion.

The moral side of the question seems to me to be this: Any one who has passed State requirements may have a right to take up surgery, provided that he then gives himself the best preliminary training within his power before attacking your mother, knife in hand. His duty after that is to devote himself closely to surgery with elimination of all other work as rapidly as it lies within his power to do so, and with no intention of continuing to do other work in connection with his surgery. Even this assumes that the question of his fitness and success is to be worked out along lines of natural professional competition, but

the State must take charge to a far greater extent than it has done up to the present time.

The State should standardize education of the surgeon, and define requirements. The surgeon himself can no more be standardized than is the artist, architect, or engineer, but his educational requirements may be stated in definite terms. Laws may be enacted which will require years of prescribed apprenticeship on the part of anyone who is to engage in operative work.

Members of the medical profession, like organic objects in general when left to their own inclinations, follow the natural laws of competition—with the public as chief victim of competition in surgery. The chief victim, awakening to a realization of conditions, will probably place surgery again in the position which it occupied forty years ago in so far as it relates to individuals who are to do special work. The public need have no fear of the young surgeon who has been properly accredited by the masters. He may and should surpass the latter in efficiency because that is what they wish to have him do.

The amateur in surgery likes to quote the examples of those who began work with small and poor equipment, but who finally arrived at positions of renown. He feels that he must begin some time, just as these few men whom he quotes began. There is a great deal in this reasoning if the fact is observed that full opportunities were difficult to obtain.

In Germany the Prussian Minister of Public Instruction has addressed to the medical councils the suggestion, on which they are expected to take authoritative action, that the right to use the title of specialist be restricted to those who have had a requisite amount of post-graduate training—three years as a rule—obtained at officially rec-

ognized and approved institutes or under approved specialists. In Austria a similar ruling has been submitted to the profession by the Ministry of Education, with the additional provision that no one is to be recognized as a specialist in more than one branch. No one is to be permitted to do surgical work unless he has a special license. Older countries are still leading ours in matters of education.

The necessity for experience in operative work is appreciated by every surgeon who finds himself employing some little bit of experiment in almost every operation of almost any sort. If these experiments are of high order, the chances are that all will make for the benefit of the patient, but unless they are based upon previous experience any one of them may go wrong, and jeopardize at least the morbidity statistics irrespective of actual death-rate.

No one of the laity can realize how much time, pains, mistakes, imagination, mental distress, and money have gone into the making of an experienced surgeon. Many of these preliminaries are avoided by the sort of men who are now swarming into surgery because they have not been able to keep up-to-date and successful in the course of the rapid evolution of internal medical practice.

If a certain operator has eight recoveries in ten cases of Caesarian section it seems to him perhaps a result of which he may be proud or even boastful. This is one way of looking at the matter, but the loss of two cases out of ten by a really expert operator would be a twenty per cent death-rate, and this would mean a fearful mortality as viewed in the higher professional circles. The saving of eighty per cent of these cases by one operator is looked upon as a triumph, while the losing of twenty per cent of

them by another operator is looked upon as a disaster. Both of these operators are at work right now at this very minute.

Even when a surgeon has become highly skilled in the surgery of some special field there are some cases that he does not manage in the very best way, and he knows it. This proportion slowly becomes smaller and smaller. Mishaps and unfavorable results are not so commonly the result of error in application of principles, as they are of failure to give just that light touch with the paddle of the canoe at bends in the current. Canoemen and surgeons both know exactly what I mean. A thousand people have died after well-conducted operations because a drain was not arranged for best mechanical efficiency, although the leading principles were well observed by the operator. Just a little of the "fine Italian hand" here and there gives the artistic touch that brings success. In abdominal surgery, for instance, one must cut down his percentage of mishaps a very little year after year and lessen his death rate at least half of one per cent a year for many years consecutively. It is exactly like the business man's way of reducing the number of small leaks. Surgeons who are engaged in their special work exclusively never feel that they have reached anything like perfection. Hardly a month passed when I did not have a case that I would like to have tried over again.

The patient who goes to a specialist on his or her own responsibility without first obtaining advice from a family physician is jumping out of the frying pan into the fire. I knew a patient who went on her own account to a famous stomach specialist because of persistent nausea. The specialist gave her a month of expensive rest cure and special diet without gaining much comfort for her. At the

end of that time the question of possible pregnancy was suggested by a woman visitor. She was examined and found to be pregnant.

If a child slips a little button into his ear and forgets about it, he may develop a cough, which will lead his parents to go the round of lung specialists seeking an explanation. The cough instantly disappears when the family doctor takes the button out. A patient with sciatica may go to many specialists—neurologists, electro-therapeutists, and what not—until the family physician, called in at last, finds an enlarged prostate gland or a pelvic tumor. Lameness and trouble with the hip joint in a boy or girl may take parents to the office of a joint specialist. After a year or so of the child's wearing of cumbersome apparatus a general practitioner may find that circumcision of the boy or girl instantly disposes of all hip-joint symptoms. A patient with loose kidney may have her appendix taken out, uterus hitched up and various other things done by specialists until her neglected family doctor finally puts a stop to it all.

I have seen every one of these things happen and so many more that I shall allow some general practitioner to tell the rest of the story about specialists when he writes an autobiography himself. I wish to order a copy of that book in advance. These remarks do not at all apply to the specialist who has had good groundwork in general practice. They do not apply to the competent men who have taken post graduate study in specialties of many kinds, and who were born competent in the first place! Furthermore, serious miscarriages in diagnosis do not occur right along anyway, but just often enough to be conspicuous and definite.

Specialists who have not had general training are prone

to go very far wrong. Within the past six months I have seen two patients with abscess of the breast who had made all preparation for entrance into a hospital for amputation for cancer; and a third case operated upon a few days later was almost certainly one of the same sort. The general practitioner might have told the people that cancer does not develop in ten days or less as did these cases of mastitis.

Instances come to mind of men whom I knew personally in medical college days who passed excellent examinations and secured positions in which they went directly into special work. Some of them took up gynecology for example without any previous general medical or surgical training. These are the ones who would remove neuralgic ovaries when the fundamental cause for neuralgia lay in splanchnic neurasthenia, caused perhaps by trouble as far away as nasal hypertrophies or an encapsulated wisdom tooth. These men, to my positive knowledge, were not qualified to work out the question of distant causes before beginning to meddle with a flexion of the uterus, which is practically always a symptom of something else. Most of the local puttering which is done on flexions or even upon versions is pernicious anyway. It is prescribing a handkerchief to muffle a sneeze without looking for the cause of the sneeze. It is very difficult to get such an idea introduced among the habit-thoughts of anyone who took up the specialty of gynecology before obtaining general medical experience. After general medical and surgical principles have been well mastered, the gynecologist is then and only then prepared to excel in the field for which he finds himself naturally adapted. At one time the death rate after abdominal operations in a certain hospital for

women became a scandal in surgical circles. The situation has now been changed.

Neurologists have developed their scientific field to very high levels, but some of them stand as much in need of aid from the general practitioner as does the surgeon when going over fundamental causes for symptoms. I recently saw a patient suffering from spinal irritation and coccydynia in a case in which a neurologist had determined after careful study that her symptoms were due to mental and moral shock received in the course of divorce proceedings. The coccyx was loose and causing all of the irritation. I have known mental and moral shock to produce really grave effects, but seldom to the extent of breaking off the end of the spine.

It commonly occurs that neurologists and psychiatrists group cases of neurasthenia among diagnostic entities and look with disfavor upon any surgical operative work for their relief. They are disinclined to look for precipitating factors along surgical lines, although surgeons, on the other hand, know that some one remediable defect may at times be chief malefactor in an individual belonging to this sensitive class of patients. Surgeons have too often made a mistake of unwisely believing that certain neurasthenics would benefit from surgical intervention. In former years I injured some patients of this class by ill-advised surgery. *Experientia docet!* Having made the mistake myself, I am in a position to know both sides of the final story.

In most of our large hospitals, purely surgical cases are kept upon the medical side without receiving proper attention, quite as often as purely medical cases are subjected to operation unnecessarily. So long as this condition

lasts we are in a larval state professionally, and we can emerge from our chrysalis only when the competent general clinician takes charge of the general supervision of all patients in a hospital.

Until very recently at least it was the custom at some large hospitals for a minor official in the admitting office to send special cases directly to special departments. Under these circumstances a patient with distention of the hemorrhoidal veins due to cirrhosis of the liver was quite likely to be sent to the surgical department where he did not belong. A patient with sciatica due to the presence of enlarged anal papillae was almost certain to go where the refined neurological staff was a bit squeamish about making rectal examinations. A patient with arthritis dependent upon latent tooth root infection or other focal infection was likewise almost certain to have the wrong thing done. Now we are all wide-awake on that particular subject, but some of us need blinders as well as reins.

A woman with beginning cyclical mania complaining of pelvic neuralgia was usually sent to the gynecological department. Patients of course do not remain long in the wrong department when keen clinicians really get to looking after them, but diagnosticians of that sort are pretty busy. Furthermore there are wide-awake clinicians who would probably not overlook any of the points missed by specialists in the particular instances that I have quoted, provided that they were given time to go over each case in their own way. But that's the trouble! In a single year I have known of four cases of cancer of the rectum that had been overlooked by one of our famous clinicians when he saw the patients in consultation for their "dyspepsia." They were brought to my attention by a rectal specialist,

Dr. S. G. Gant, under whose care they came after cancer was well under way.

An Army officer came with his wife to my office as a last hope. The wife was suffering from a sarcoma of the hip which had become metastatic and involved the spinal column. They had visited several cities and had consulted high authorities, all of whom decided that the case was hopeless and that nothing could be done. That was my own opinion, too, but it seemed worth while to ask Dr. William B. Coley to try. The wife became perfectly well under Dr. Coley's treatment.

I remember the case of one young woman of sufficient means to secure unlimited skilled service who was badly deformed by small abscesses constantly appearing upon the face. She suffered much from digestive disturbance and had a notebook list of thirty physicians whom she had seen over 15 years, most of them known as experts. Not one of them had helped her for any length of time. I sent her first to a gastro-enterologist in whom I had confidence, but she returned in the course of two months without having been benefited. She was then sent to a neurologist, who failed to help her, then to a skin specialist, who applied several up-to-date methods of treatment which he was sure would be of value, but which did not prove so. I finally sent her to an ophthalmologist, the late Dr. J. H. Woodward, in order to have him look for an error of refraction as possible precipitating cause for digestive disturbances, without having in mind at that time any reference to trophic disturbances of the skin. He proved to be the right man. An error of refraction through eye strain had caused distant phenomena, and she was promptly and permanently cured of skin trouble as well as stomach trouble. Somewhere, if he can be found, there

is some doctor who knows or who finds out the best way for treating almost any chronic illness.

Governments are now asking legislators to look into all departments of public hygiene in an official way. The new social adjustments that result have aroused fear of socialization of medicine. Personally I believe that we need have no fears beyond such as are really desirable for bringing about proper new arrangements. The individualistic general practitioner and the individualistic specialist will continue to be needed because their respective fields remain unchanged for reasons that are as fundamental as are stresses which enter into computations made by the engineer. The tensile strength of a breaking heart is not changed by a whole State Board of Health acting officially. The detail belongs to the general practitioner and there's plenty of such detail.

The family doctor very soon learns to know that he must not listen to one side of any story without obtaining the other side of it. He is constantly consulted in family troubles, and adopts the attitude of an experienced mother who asks, "Who pushed first?"

At a time when too many colons were being removed following Lane's idea of disposing of toxic effects in that way, Dr. Von Strensch asked me to see a man suffering from a mania and who required two attendants day and night. He screamed so loudly and so constantly that a number of private sanitariums had refused to keep him.

I found that the ascending and transverse colons were constantly distended, and that he became temporarily better after colonic flushing. I consented to remove these distended parts on the understanding that the procedure was one of questionable character, but permissible in view of the hopelessness of the case. The man promptly became

well enough to dispose of all attendants and to take up again the management of a large business. (Today I would try out treatment for a toxic psychosis first.)

Another case of mania, cyclical in type, was brought to me later by the same physician. The patient, a beautiful girl, nineteen years of age, was very destructive during the depressive stage and would run about the room tearing down works of art and curtains, meanwhile putting her right hand to the right side of her head frequently. An examination of her head was made, to see if there might not be an old injury. Someone then recalled that she had fallen from a chair and injured her head when a little child. Irritable dural adhesions had resulted. These were separated and there was no recurrence of mania subsequently. Surgery was the only thing for that patient.

Dr. Condict W. Cutler sent me a young woman about thirty years of age who had erotic mania at each menstrual period and disgraced the family. Removal of her ovaries was completely curative. This was before our great advances in endocrine therapy. It is not unlikely that she might have been cured by endocrine treatment without need for surgery. The teachings of Dr. Sajous on that point were being shunted by the profession.

The mother of one of my assistants recovered from melancholia after I had done a Bassini operation for a troublesome hernia which caused digestive disturbances with toxic products precipitating a psychosis. It is unlikely that any of this surgical work for psychotic patients would have been suggested by many specialists in mental diseases. That is putting it mildly. There is a great deal of mutual recrimination between surgeons who have advocated work along this line and psychiatrists who have good notes of lamentable failures put down in black and

white. My own attitude has always been as follows: If a psychotic patient has some condition requiring surgical treatment anyway, regardless of the mental state, I am willing to do what should be done on general principles. That will at least remove one possible precipitating factor, leaving the field more clear for the family physician who may then proceed to manage other precipitating factors or even causative factors in cases in which endocrine imbalance is causative—and in advance of fixation of morbid habit.

CHAPTER IX

I PRACTICE SURGERY

AT THE time when I took up surgery as a specialty it was just rounding up for that tidal wave which sent it surging over the top of all other departments in the field of medicine. The inspiration of being lifted along on the very summit of such a roaring, foaming wave can perhaps never again be enjoyed by doctors.

We surgeons all had enormous russet leather or pigskin bags that we lugged about, shifting them from one hand to the other. There were special compartments for sterile sheets, towels and gowns, gauze, and cotton dressings, bandages, bottles of antiseptic solutions, catgut and silk ligatures, and what might be called a rattling collection of instruments. Printed instructions for preparing a room for a surgical operation were sent to nurses or to members of the family in advance of the interesting hour. Curtains, chromos and carpet were to be removed, basins boiled, and a large receptacle was to be filled with sterile boiled water. Windowpanes had to be soaped. This would allow light to enter freely and at the same time kept sympathetic neighbors from viewing vivid details.

Equipped in this way we were prepared to go at a moment's notice to any part of the city or State and to any State in the Union. Metropolitan surgeons were called to great distances in those days before first-rate surgeons

were nearer at hand in the smaller towns. I remember on one occasion receiving a telegram with a call to San Francisco, and on the very same day another telegram with a call to El Paso, both of which had to be refused. This, of course, was not an everyday occurrence but was likely to happen once in a while to almost any surgeon in a large city. We usually had to refuse these long distance calls if they came on short notice because cases already under our care at home would be neglected and first duty was always toward them.

Calls from the doctors in my old college town, Ithaca, became so frequent that I finally set a fixed time for visits there excepting for emergency cases that were taken on the run by the first train.

One morning in midwinter, Dr. M. A. Dumond of West Danby near Ithaca telegraphed me to come up and operate upon a strangulated hernia, saying incidentally that his patient could not pay very much. That made no difference to me, as Dumond well knew. I arrived near nightfall in the midst of a howling blizzard with snowdrifts over the tops of fences. The patient was an old farmer living several miles away. We started off in a sleigh across country because roads were blocked and we had to get out several times to help the plunging horse over fences and out of drifts in the dark. It was impossible to light the lantern. About midnight the horse became hopelessly stalled. We hitched him to a fence rail, got a blanket on him, and waded the rest of the way on foot, arriving at the farmhouse in the early morning hours. We were in time to save the old man's life. Next morning, we had to struggle all of the way back through deep snow, and we did not get to the doctor's home until about noon, but a breakfast of hot buckwheat cakes with sausages and

coffee at the farmhouse had given us good ballast. When I started for the station Dumond took some feed and a shovel back to his horse.

That reminds me of another night case. I have never dodged hardships of any sort when physically well. I have always enjoyed springing straight toward a challenge in a spirit of sport, but there comes to mind a trip when I was suffering acutely from the grip and had gone to bed at the home of a friend at Glen Cove on Long Island. A telephone call came some time before midnight, asking me to go down to a town in New Jersey to care for an emergency case of typhoid hemorrhage with a question of perforation. The call was from an old friend in New York who had been in close attendance upon the patient, fearing the dangerous complication which had now suddenly appeared. We had cared for many serious cases together for years and knew how to depend upon each other—a very important matter in crises. At that time of night, railway connections would have meant very great delay and there was not a moment to be lost. The circumstances were stated to my host who offered me the use of his car and chauffeur. We got down to the New Jersey town some time between three and four o'clock in the morning. I did a local drainage operation requiring less than one minute of operating time and the patient who was in desperate straits made a good recovery. It so happened that he was in financial difficulties at the time and could not pay our bill. I have particular sympathy for a man who has the courage to live in the presence of a combination of typhoid fever complications and financial complications. The patient never did have opportunity to pay the bill for services up to the time of his death from pneumonia some three or four years later.

On the trips to Ithaca, Dr. and Mrs. John S. Kirkendall invited me to be a guest at their home. Dr. John was at that time engaged in general practice and like the Whittemores was over the hills and over the town night and day in all weathers in a continuous performance. His wife never knew when he would be at home for meals—but what meals they were when he did come in! Not only was there no complaint from the servants but they joined in the spirit that necessitated disarrangement of all schedules and made merry over the menace to their patience. Thus does the élan of usefulness set all surroundings into harmonious response. Many a time when called to some distant State it has been desirable to remain at the home of the doctor for two or three days in order to start a surgical case off on a safe track.

All of the physicians of Ithaca and of surrounding towns and villages were saving up cases for my regular visits, with the exception of one doctor who had been chief surgeon for the whole district for many years. We remained friendly because he was a scholarly man of large mind who had fully merited the esteem in which he had been held. He was very much occupied in medical practice and consultation work, and had been too busy to find opportunity for acquiring the methods of antiseptic work. When one of my assistants, Dr. H. B. Besemer, told him that we had operated upon three appendicitis cases that day, he remarked that he had been in practice for more than thirty years and had never seen a case of the disease in all that time, to which Dr. Besemer responded, "Oh! but two of these patients had been under your care recently with previous attacks." That was the situation in general with even the best of older practitioners throughout the country. Most of them almost certainly saw sev-

eral cases of appendicitis every year but they had "never seen one."

We operated upon so many of them at Ithaca that laymen asked in all seriousness if there was anything in the water of the locality that might be held responsible. They had made inquiry and concluded that no other town in the State was afflicted in the same way so far as they could learn. We were simply making the diagnosis there. Today almost any community in the civilized world is so "afflicted"; appendicitis being the most frequent abdominal condition calling for operation.

A big, burly ice man at Ithaca brought me his baby daughter suffering from prolapse of the rectum. When I began the operation of taking out alternate strips of mucous membrane the hemorrhage was not controlled very well by the device which was employed and it was necessary to back out of the case defeated. I told the father that we would have to employ another kind of operation when his little girl was older. About a month later the father came in and said that he had not received any bill, pulling out a roll of cash as he spoke. I said there would be no bill and asked how baby was getting on. His reply filled me with joy, "Oh, she's all well. After we got home my wife remembered that alum was kind of puckerin'. She mixed up a lot of it in water and put it on two or three times a day. Baby got all well in about a week." He still insisted upon paying me and when I declined to accept anything on the ground that it was his wife and not I who had brought about the cure, he said:—"Why, Doc, we all done the best we could and you had a whole lot the most trouble."

A similar incident occurred some years later in New York. A charming young woman developed an ugly crop

of warts on both hands. Several experts treated her expensively without gaining any result. Some neighbor told the mother to apply castor oil locally at night. This cured the warts. The neighbor made no charge.

Such incidents were typical of my earlier practice. In later years, my work became less strenuous, perhaps, but no less interesting. Here is a typical day:

Forty minutes to One Hundred and Twenty-Fifth Street station—a few minutes more by taxi down to Fifth Avenue Hospital in order to look over case records and say good morning to patients. Subway and trolley to the office —an hour and a half reading letters and dictating replies.

The morning mail:—Four circulars from drug houses giving information about what I should use in order to succeed in practice—that at least being the general idea. One of the circulars is filed away for later investigation; and some samples are handed to my secretary, asking her if she knows anybody who wants to get well. Two letters from investment houses, offering stock for sale and calling attention to opportunities that really look remarkably attractive. Two letters from charities asking for contributions. Both of them make deep appeal to my sympathies and arouse the feeling that here is really something for which I would like to have a good deal of money. A circular from a book publisher. It happens to describe worthwhile books. I wonder if publishers make selection of names of people to whom circulars are to be sent. Advertising literature relating to the revolting kind of realistic novels does not come to doctors apparently—not in my daily mail anyway.

Here's a letter from a doctor living at a distance and telling of two patients who will shortly arrive to be under my care in New York. Also a letter from another distant

doctor asking me to act as guardian for his daughter who is coming to the city to enter a finishing school, a compliment and a responsibility. The next letter is from an old physician, relating to one of his cases and expressing great joy at having traced a case of polycythemia to its origin. He made a complete cure with Lugol's solution. The delight of this seasoned old clinician is detailed so boyishly in his letter that I wonder if anyone making a few thousand dollars in the Stock Market could have found an equivalent. Not for that doctor at least. I once heard an able practitioner say that he would not be willing to continue in practice if he were to be deprived of Lugol's solution. Quoting this to another doctor, he had to stop for a moment in order to remember just what it was. Each doctor has favorite and successful prescriptions of his own that many another doctor doesn't use at all.

There's only one bill in the mail this morning and three checks; it is usually the other way. A letter offering genuine antiques for sale comes in an envelope remailed. It had gone to my old address of nine years ago—all in keeping with antiques—because the dealer has purchased some ancient mailing list for a song. Here is a reprint article on deficiency of iodine in the diet. A letter written somewhat laboriously in long-hand comes from a farmer who has heard that I am interested in the raising of nut trees. He encloses a stamp and asks me to write him what I know about it. I have published one book, a few monographic reports, and perhaps two hundred articles relating to the subject. A patient of twenty years ago writes that the world is small because he has just run across another former patient of mine in Louisiana. Both are apparently inspired when recalling serious operations—long forgotten by me—and I am very much pleased at the thought-

fulness and good will which prompted the writing of that letter.

Office hour at noon. Four people in the waiting room. A well-dressed stranger steps into the office ahead of the others. He has asked the others to wait "because he had an engagement with me." He was really the last one of the four to arrive, as my secretary explained later, adding that the only engagement was his calling up to learn my office hour. He has stock in an oil company to sell. Agents are taboo in the building; and I do not know how he got past the Cerberus at the door, excepting as a man who looked so prosperous that almost any doctor might want to see him. His stock is a bargain—price to be raised next week. He will telegraph orders to the West because the mails are untrustworthy. He says that Dr. Fox sent him to me, and that Dr. Coley and Dr. McKendree have arranged to take some of the stock. I tell him that I am not interested and other people are waiting in the office, one of them to my knowledge in a hurry to get a train out of town. He asks me to remember what Singer Sewing Machine stock did for its holders. My reply, that money does not appeal to me and that I am interested only in science, takes him aback for a moment only. He quickly gets into form again and asks if I remember what Calumet and Hecla copper did for scientific men at Harvard—made them rich and they didn't have to do anything at all after that. He is finally out. Dr. Fox on the telephone in response to my question says that he didn't even see the man and the others reply that their secretaries got him out quickly.

Next, the first patient, in a hurry to get away. He has a return of the hernia upon which I operated two years ago. He is disappointed and so am I. Did he bring with

him my formal written statement that it was a direct hernia and therefore more likely to return at some time? No! He put the statement away in a drawer somewhere and forgot all about it. My duplicate is on file and it saves the situation. He is ready for another operation.

For many years I have kept blank forms in the office—to be filled out for patients who may forget what is told them about possible unsatisfactory results of treatment. These blanks give a brief diagnosis of the case, prognosis, proposed plan of treatment, and anticipated results. They are particularly valuable for fracture cases and will avert many a lawsuit. They soften resentment when cancer returns. In this particular instance the possibility of need for another operation at some time in the future had been written out in black and white. A reading of the duplicate record that was on file changed the whole attitude of the patient.

Were I to begin professional life over again, a definite new feature would be added to this—a sort of condensed history telling the patient what is going to happen and when. Almost everybody would like to have a much fuller understanding of the entire subject relating to their particular kind of illness. If we run over the matter casually in conversation or too briefly, a patient usually translates technical points in a most grotesque way without our realizing it unless a neighbor tells us what the patient told that neighbor. After the description has passed through about six of these refining processes almost any doctor would be shocked to hear that any colleague had ever said anything of the sort to any patient. While still inexperienced, I gained the impression that certain doctors must be simpletons because of quotations coming from patients, but now I know that we are all vulnerable.

It is not much trouble to have a typewritten history struck off for the patient, giving an accurate statement of what the doctor would at least like to have the patient understand clearly. Someone will remark that the plan would not be proper for a cancer patient as a rule. True enough! I give that statement to some relative. I do the same for an idle neurotic who dotes on symptoms. He (or she) would not want a genuine report anyway.

Next case—a worried mother whose fine little eight-months-old boy has swallowed a small safety pin.

"Was it open? I hope it will lodge somewhere and not go through."

"Why, what can you possibly mean, Doctor? It sounds cruel but you are smiling."

"Most of the things that children swallow seem to go through or to rust out and I have been looking for some sort of object that will really get held up."

"That gives me a great deal of comfort, Doctor, and you wouldn't joke if it were as serious a matter as I had feared. Did you ever really hear of an open safety pin going through?"

"Oh! Yes! Of the swallowing size. Sometimes we have to lend a hand with the speculum at the very last stage of the journey, but some little fairy inside usually turns the pin around so that it goes along on a safety-first principle."

"But what if one actually should lodge inside! Somebody's baby besides mine!"

"The X-ray would show it up right away and we could operate and remove it."

"Sonny Boy must really be in pain because he is crying so hard."

"Did he cry before coming into the office and seeing a fierce stranger?"

"Yes! But not quite so hard."

A genuine instance of thought transference at last! Let's make a test. Here's some sticky stuff for the forefinger of each little hand. Now then a bit of cotton for one of the fingers. See! he tries to pick it off and it sticks to the other finger. Now he is busy, changing that cotton from one hand to the other; no more crying!

An old bachelor who comes down from Connecticut almost every year with some new condition requiring attention has trouble with his elbow this time. He asks how many diseases a man may have. I set the figure at two thousand and he replies, "Good Lord! Have I still eighteen more to go?"

Here comes a dear old white-haired German lady bringing me a little pot of ivy from her garden. Some years ago I repaired a bad glass cut of the tendons of her wrist and charged a small fee which she paid in five-dollar installments with regularity. During the World War she came in frequently, and with tears welling from her eyes begged, *"Bitte geben Sie etwas für die armen Deutschen Leute die so viel zu leiden haben."* Even her tautology in that sentence was pathetic. She was working beyond her own strength at sewing in order to make a little more money to send over. I gave her five dollars at a time—long after her original amount had been returned. Here was I, a Major in the United States Army, sending money over to the Germans when we were at war with them. "Consistency thou art a jewel!" The gift of a little pot of ivy which she has now come all the way from New Rochelle to present is touching proof of the real goodness of people in this world. On her previous visit to the City

she brought me a little pot of forget-me-nots. *Lebewohl Tante! Aufwiedersehen!*

An extremely beautiful Jewess steps in with unstudied grace. Her face has the sort of divine look that artists feel deeply but cannot reproduce. The least bit of make-up on that countenance would be smut on the petals of a lily—in other words an all-sufficient face is hers—one of the sort that we often saw years ago. Her husband is one of the intellectuals and has the restrained bearing of a cultivated man who is in deep trouble. They are awaiting my report upon a specimen that was sent to the laboratory. Cancer is the verdict. I do not need to say it. She instantly reads my thought.

Throwing her arms around my neck she exclaims, "Save me, Doctor! Oh, save me!—for my husband's sake. We are lovers since childhood days. We helped each other with studies. We helped each other to put aside money until we could afford to marry a year ago—and now see! See what I have done to him! See what burden I am placing upon his shoulders, the shoulders of my lover to whom I wished to give an heir! That was what we talked about—not cancer!"

She is thinking about her husband instead of herself—something that goes with her type of face. At her age the case is hopeless. I tell her that instances have been reported in which radium treatment has held up the development of malignant growths and I will refer her to an authority. I know the real truth, however, and so does she, but there's a faint glimmer of hope.

In comes a former patient to tell about her final recovery from neuritis after I stretched the injured nerve and injected it with alcohol.

"I was passing through the street and just dropped in."

"Are you still single? I thought you were to be married?"

"Oh, dear! I do wish that John would make up his mind. Here it is three years gone by without his saying the definite thing."

"Do you wish to have children?"

"I don't know. Never thought about it much. If they were to come along I suppose it would be all right."

"Let him know that."

"Goodness gracious! How could I be so indelicate?"

"Oh! there are ways. The most fundamental desire of every normal man is to have progeny, even though he does not realize it and keeps it down cellar in what they call the unconscious."

Ten days later I hear of their engagement.

Last case. An automobile agent who once rendered me a service on wholesale price (as he said)—on the score of old acquaintance—and I am under obligations to him. He served for three months in the Spanish-American War but was not called into action and now wants a pension from the Government for an attack of pleurisy with adhesions that came on some years later. He wants me to swear that it resulted from exposure and fatigue—(probably when he was playing poker at four o'clock Sunday morning and exposed to bootleg whiskey). Handing me the papers already signed by other people he says:

"Now bear on hard with your statement. Those people at Washington in the Pension Office won't pay any attention unless you make it good and strong."

He appears to be pained when I say that nothing of the sort can go over my signature and immediately quotes a number of instances of friends of his who have secured pensions on far less genuine claims. "Fakers" he calls them

and says that they laugh at our Government for being a cheap sucker when pensions are to be given.

"What do you think of the World War Veterans' Act and the idea of our Federal Government giving medical and surgical care to veterans, rich or poor, who are suffering from things having no relation to service?" I ask.

"Poisonous politics in the Legion! Say, now, if things like that are all right why can't you sign a little thing like my application?"

"Because it is necessary to keep a consistent attitude. I was stopping in a village once where thrifty people had to consider the matter of expense of sending one more man to their poorhouse. Suddenly a bright idea was brought forward—why not get a pension for him? He had served in some capacity in the Civil War. A pension would not only keep him out of the poorhouse but better yet would actually give him real money to spend in the town. I was asked to examine him and to find out all that was wrong with his health. My reply was that it would require special work, out of my field of study. A politician and a pension attorney did their stuff and attended to the matter, securing twenty-two hundred dollars of back pension and a monthly allowance. He went about boasting that he had more real money than anyone else in the town—which was doubtless a fact."

"Well, now, don't you see my pension has nothing like that in it?"

"True enough, but I can't sign the application."

Doctors E. P. Fowler and J. Bayard Clark join me for luncheon and we run around the corner to find Dr. Colman W. Cutler already there—four for the table to discuss anything from Architecture to Zenobia. Then to the Lexington Hospital to see a gallstone case—an old Gen-

eral from a Southern country who came up to New York on a steamer two days ago with his wife, eight children, and four servants, expecting to find quarters at the Hospital for all fourteen of them. The family was finally housed in a hotel not far away, but the disturbance together with apprehension about the impending operation caused the General to lose nerve. He left the hospital saying that he was feeling better and would probably be back in the fall. His family physician went over to the hotel; and, after enough conversation in Spanish to settle a whole international dispute, persuaded him to return to the hospital yesterday. I put his sixteen gallstones in a bottle to be placed on a table by his bed as evidence of interest on my part when he came out of the ether. As I enter the room and step to the bedside where he is supposed to remain very quietly on his back for a week, he jumps straight up in bed, puts his hands on my shoulders and gives me a heavily whiskered kiss.

Down to Broad Street Hospital to operate first upon a comminuted fracture of the humerus requiring suturing of a ruptured musculo-spiral nerve, and then upon a fibromyoma of the uterus in which the patient (less than forty years of age) wishes to have a child. She has been informed that if we do a conservative operation of that sort there will probably be a return of the growth at some time in the near future. She is perfectly willing to face two operations if in the meantime there is a chance to have one or two children. It is a question that I leave to the patient instead of deciding the matter myself—with the proviso that we may find it impossible to do a conservative operation after looking over the situation while at work.

A visit to the pathological laboratory to look at speci-

mens sent up for examination—then to the X-ray room to view radiographs of a case of suspected stone in the kidney. The diagnosis was right. Consultation with one of the internists of the staff who is not sure about what is causing sciatica in his patient. Case records to be looked over and instruction given to the house staff.

Then up to the Club for dinner with old friends, first telephoning out home to know if all's well with the family. Off to a meeting of the Surgical Society at the Academy of Medicine to discuss points presented by one of the speakers. Back to the Club again for the night with regrets that society meetings and late board meetings ever keep me in town.

The stop in town overnight has its attractions, to be sure. There's the meeting of old friends and discussion over topics of the day among men who have an active hand in the making of such topics, but that is not a real triumph for the end of a day. The real triumph completing a perfect day is returning home.

Surgeons are frequently asked if they are not nervous when about to do an operation. I cannot imagine such a thing. We concentrate attention upon the idea of doing something that will help somebody out of trouble. How can one become nervous over the idea of being useful? My only worry has been that the wrong patient might be rolled into the operating room out of turn at the hospital when several operations were on the schedule for an afternoon. Patients are prepared and covered up in such a way in the anesthetizing room that the surgeon and staff do not always recognize the particular patient who is brought in. The schedule is sometimes changed at the last moment.

I remember having felt very faint once and obliged to lean up against a fence when I saw a brakeman miss his

footing after jumping from a moving freight car. His foot clearly went under the wheel. The next moment he limped away with the sole of his shoe torn loose and the foot unhurt. On another occasion when riding near the shore with a party of friends an osprey flew low over the carriage with a whitefish in his talons. One of the ladies asked why I had suddenly turned pale and I replied that the sight of drops of blood trickling down the side of the fish made me feel faint. None of the other three people had been affected by the sight yet I was the only doctor in the party, sometimes doing several surgical operations in the course of a day.

In the operating room I do not remember to have had any special feeling excepting when relatives arrived to see their dead. Yet, something has bothered my eyes at the sight of some small dead bird with feet outstretched in mute protest against a fate that had taken the spark of life away from one so little and so innocent. I recall one occasion when a little five-year-old girl was smoothing the feathers of a dead myrtle warbler found upon the lawn, commenting only upon the pretty colors without expression of pity. When we buried the bird in the garden, she caught my very brief expression of feeling, and next morning I found two wilted violets and one wilted dandelion placed between short crooked sticks that were stuck awkwardly into the ground at each end of the tiny grave. The child had placed them there without my knowledge and had not told me about it—a touching incident all around.

In common with other surgeons, I cannot bear to look into a market window where humane societies allow lobsters to be placed upon ice with torturing plugs driven into the flesh of their claws. Lobsters never have to come

into contact with anything so cold as ice in their native waters and it surely causes distress if not actual illness. The cruelty of a wooden plug driven into the flesh of their claws gives shivers to a surgeon. He looks upon it as a sharp splinter driven into a man's hand between thumb and forefinger and allowed to remain there. Inflammation sets in at that point. Even though the lobster is less sensitive to pain than we are, its reparative and protective physiology is busily at work at the site of a plug driven into the flesh. I presume that a great deal of pressure is brought to bear upon officers of humane societies who allow the poor helpless lobster's claws to become inflamed as a matter of convenience for the dealer who otherwise would have to use tongs.

I have had many changes of view and of feeling since the Eighties but have never lost the feeling of compassion for any living thing that is suffering.

CHAPTER X

TEACHING

IN 1889, at the insistence of my old friend Dr. A. M. Phelps, I was given a position as instructor in surgery at the New York Post Graduate Medical School and Hospital. This led, step by step, to a full professorship.

I felt from the outset that I was of too heretical a nature to teach; that I was better adapted to doing new work independently. I wished to be free to make mistakes and correct them myself and to speak without restriction. Because of this, teaching made me uncomfortable and ill at ease.

Some of the members of the faculty feared that my radical attitude on some subjects might jeopardize the success of an institution which was a new venture at that time, but my classes consisted wholly of men already experienced in professional work, and they were keen for knowledge and eager for dispute. My post-graduate teaching lasted for nearly thirty years until the time came for retirement on age limitation.

During this time I had been asked to fill the chair of surgery at Ann Arbor, and that at the University of Virginia, but I had refused, feeling that hospital and library facilities were inadequate at these schools. Since that time, other teachers who did take the chairs have established libraries and hospitals. They were farther-seeing than I

had been and also better teachers than I should have been, for undergraduate students at least.

I did enjoy post-graduate teaching, but I am not so sure that my students always enjoyed it.

A photograph was taken of my class at the Post Graduate for the annual catalog. The operator, in order to have everything natural and not posed, stepped behind me quietly. Without warning the class about the flash, he chose a moment when I was making an impressive gesture. In those days shutters of lenses were not always adjusted for proper speed. When the negative was developed, it was found that everyone in the audience had his eyes closed. Here was photographic proof. I was lecturing to a class that had gone fast asleep. Another picture was taken next day, but I had a number of the first lot printed to send to some friends. One of my friends waggishly framed it and hung it in his office.

There were, at least, a number of visitors who seemed to like my teaching, even though they thought it heresy. One afternoon, Dr. Bernays of St. Louis attended my clinic. He noticed that I did not confine myself to short incisions in all my abdominal work, and commented on it.

"Of course not," said I.

"Then why don't you say so?" he asked. "Surgeons get the idea that you want them to do that all the while and it makes them mad."

"I expect them to use common sense."

"They think you don't."

"All right—haven't they stopped 'committing taxidermy' and putting in plumbing systems for drainage?"

"Yes! Some of them."

"Is Abbe already putting the short incision idea into application and talking about it?"

"Yes, he is, but when I asked Dr. X this morning if he was going to use a short incision he gave a scowl and made a cut three times as long as was necessary."

"Well, that's all I am after. Just give them something to throw stones at. If I had simply said in a sensible way that short incisions might be used to advantage in suitable situations, the suitable situation would never have turned up. When they stop to fight, they stop to think—it makes them jump out of the trench long enough to have a look about. All I want is to have them give the patient an advantage instead of giving one to themselves, when it may be done as well as not."

"Anyone who talks with you for five minutes will have no fight left in him. But why have you said repeatedly that if pus escapes upon the free peritoneum it becomes a nourishing albuminous fluid? They think you a crazy teacher."

"It is because I saw them killing patients with meticulously conscientious methods for cleansing the peritoneum. They injured the peritoneum until it lost its natural defense. Ordinary pus contains but few active bacteria—a peritoneum loaded with the usual physiological defense materials will absorb it without harm. So why not overstate the point so strongly that every man will stop to correct it? Exaggeration is a microscope which brings out clearly important small truths without deceiving us as to their real proportions. Surgeons know very well that the peritoneum in a case with abscess is already right on the spot with wonderful defense measures, yet they damage that peritoneum and add to surgical traumatism by making an incision large enough to pack off the area with masses of gauze that cause still more traumatism. This is a hang-over from the time when they got their first ideas

about microbes. All I want is to make surgeons remember what they already know. If I can do that, my ambition will be satisfied and my mission in life a success."

This was certainly heresy, but I am convinced that a teacher can do no harm by teaching heresy in these days. Too many minds in the audience are trained in methods of critical analysis.

At Cornell Medical School some years ago a highly valuable teacher on the subject of children's diseases was violently opposed to the use of diphtheria antitoxin after it had become accepted by the profession at large. I was a member of the board of Trustees of the University at that time. A delegation from the student body came to me to ask that this teacher be discharged or that his teaching be supplemented by that of someone else. They felt they were being deprived of the opportunity to know all that was being developed in connection with diphtheria antitoxin. After a conference with the Medical College Committee, one of the other teachers was asked to include antitoxin teaching in his course. The friction of the incident spurred every man in the class to a mastery of the whole subject.

My beloved old friend, the late Dr. Andrew D. White, said that the best educator was the one who set other people to thinking. He postulated an audience competent enough to answer questions by the Socratic method. We find that sort of audience at medical society meetings.

Since the earliest days of professional life, I have made it a point to have something to say, to be taken or rejected at its face value, where doctors were assembled. I have attended local, state, national and international medical society meetings with a good deal of regularity, even when serious interference with my practice resulted. At these

meetings I gained information, was checked up in any wrong view of my own, and the bond of union furnished by wide acquaintance in the profession has always been delightful in a social way. I could step out of a train in almost any city in the civilized world and telephone some personal friend, whom I have met at society meetings. It makes one feel rather cosily and snugly at home almost anywhere on Earth.

Freely expressing opinions in writing or in speaking has always delighted me, regardless of the consequences. Life is a sparring match. If one will learn to shake hands both before and after a bout, he need never lack sport in daily life. One of my acquaintances gave up medical writing because he always stepped on somebody's toes. He should not only have stepped on toes but have jumped on them with both heels. I have always felt grateful when anyone jumped on my toes, because it forced me to think.

CHAPTER XI

THE FOURTH ERA IN SURGERY

SURGERY may be divided historically into four eras: A first, Heroic Era; a second, Anatomic Era; a third, Pathologic Era; a fourth, Physiologic Era. These successive eras mark tremendous strides in the advancement of surgical technic, and each in turn lowered operative death rate.

I have spent the last thirty years of my professional life trying to arouse the surgical world to the importance of this Fourth Era—urging it to use the physiology it knows—to bear in mind throughout every operation the fundamental fact that *the patient, on the whole, is his own best antiseptic.* Using Fourth Era methods, I brought the death rate in my appendicitis cases down to 2 per cent at a time when other surgeons were reporting a death-rate of 15 to 17 per cent.

The Heroic Era dates in history from Hippocrates or the early Egyptians or the Sumerians for that matter. A rather surprising amount of surgery was done for centuries by men who knew little of anatomy or of physiology. Rapid operating must have been the rule during this period, to avoid hemorrhage and shock, but we have no reference to it in the ancient writers until the time of Celsus (25 A.D.), who said, "The surgeon must not have compassion which will lead him to hurry."

In the sixteenth century, Ambroise Paré favored a speedy operation. Heister in the next century went back to the position of Celsus. He wrote that the operator should use expedition but not hurry. Most of us will agree to that.

Up to 1550, it was believed that surgery had reached its limitations, but Andreas Vesalius was then anticipating a Second or Anatomic Era. Because of religious prejudice, however it did not come about until 200 years later, when students under John Hunter were obliged to develop a highly comprehensive and refined knowledge of anatomy.

In 1772 Morand of Paris called attention to the fact that the old adage *"Tuto, cito, jucundo"* applied to surgery quite as well as to medicine. Bardeleben one hundred years later expressed the same idea. Bardeleben said in addition, "Safety is the first consideration but rapidity is the goal to be aimed at and is sometimes indispensable." Many of us remember this white-haired old surgeon and his deft manipulations at a time when no other Berlin surgeon, excepting Israel, appeared to care about the patient himself.

In October, 1820, newspapers reported that a Russian cobbler by the name of Kolesnikof, who had fraudulently acquired the license and documents of a deceased Dr. Meski, went into surgery and actually became chief surgeon of the Kieff Hospitals. He did 600 major operations with a mortality percentage which was much lower than the average. Upon discovering his identity, Kieff surgeons were astounded at his record. At the trial it was testified that he operated with "brutal rapidity." That was the reason for his success but they did not know it. A brutal rapidity may be kindly.

When we get to the English school of the Anatomic Era, Sir Astley Cooper does not mention rapidity of operating but concentrates attention upon knowledge of anatomy. Sir Robert Liston speaks in praise of dexterity and boldness without referring to rapidity. Bell, Lizare, and other contemporary writers did not go into the matter of qualifications aside from knowledge of anatomy. Velpeau does not refer to timesaving excepting in the presence of syncope.

When anesthesia was introduced, Skey was one of the first to awaken to the idea that the use of it might lead to shock because of the increased length of operations. "The duration of an operation may exceed the endurance of the patient," he said. On the other hand, Treves, in 1892, conceives of the rapid operator in the light of a player to the gallery. He gives such an operator no credit at all for trying to conserve the patient's vital energy. One gets the impression that Treves was aiming a parable at the head of some one colleague whom he had in mind, Lawson Tait, perhaps. Tait, using Second Era methods, sneered at antiseptic or aseptic surgery at a time when it was close to our hearts. He presented better statistics in abdominal surgery than were presented by any surgeon of his day who was following Listerian principles. His results called for explanation which we could not then give.

Tait was a speedy operator through small incisions. He worked lightly, by the sense of touch. He did play to the gallery a bit, but with a sense of humor that seemed to be directed toward Treves. Tait was depending upon the patient's natural powers of resistance which, through rapid operating and the infliction of a small degree of surgical injury, were not shocked and put out of commission. It looked very much as if his patients were meeting infec-

tion better than the patients of the rest of us, with our captivating Third Era art based upon the newly accepted science of the day.

When I was visiting Lister, Knowlsley Thornton who scorned the carbolic spray, took me through his wards and showed me that dressings with wine and balsams did about all that Lister claimed for antisepsis. Thornton, like Tait, was a rapid operator. His wounds under wine dressings were very clean, superficial infection at least had been avoided and the peritoneum cared for deep infection. Wine dressings had been effective among semi-wild tribes in Arabia.

Added to the statistics of Tait was the fact that patients with purulent collections in the peritoneal cavity very frequently recovered without operation. That again was testimony in favor of the idea that the patient himself was enabled to conduct some pretty good germicidal work on his own account without any help at all from us.

Europeans, in those days, used a very deliberate operative procedure through long incisions, employing coarse silk ligatures and sutures instead of the delicate catgut used in America. Americans felt that their patients would not live under that sort of surgical assault; that those who did must certainly represent survival of the fittest after centuries of serious hazard.

A Russian laborer loads bars of pig iron upon a freight car at Vladivostok. He carries a heavy chain over his shoulder and at every trip to the heap of iron places the chain around five bars and carries them to the car. Each load with the chain represents a weight of more than five hundred pounds. Yet, the man keeps at it all day long as his regular job.

In Austria I have watched barefooted women carrying

heavy hods of brick and mortar up ladders all day long in building construction—barefooted, remember!—and perhaps from fifty to a hundred pounds to the load. This sort of European could withstand European operations.

Then came a Third Era: the Pathologic Era. It was introduced by the practical work of Lister based upon the bacteriological discoveries of Pasteur. With it came revolutionary advances in surgery.

Knowledge of life history of the microbe allowed surgeons to work with such degree of safety for patients that many operators assumed responsibilities for which they were in no way prepared by judgment, experience, or learning. This was one of the vices of the Third Era in surgery which accompanied its virtues.

Another vice going with Third Era surgery was the length of time which men deliberately gave to any given operation, fortified as they were with antisepsis and anesthesia. There was too much handling of viscera and tissues without regard for false or superfluous motions, each one of which sent a destructive impulse to the centers of consciousness of the patient even though he were anesthetized. Surgeons forgot what they knew about values of the sense of touch and began to work more and more by the sense of sight. The basic idea in this era related to removal of microbes and their by-products without knowledge of or at least due regard for natural protective forces belonging to the individual. Every single microbe had to be captured and the patients suffered badly in consequence.

In the First and Second Eras of surgery man was bigger than the microbe. In the Third Era the microbe was bigger than the man.

Inimical microbes as well as body cells are composed

of protoplasm. Both are simple in form and structure but highly organized chemically and in the course of evolution have come to be the peers of each other as a result of the struggle for existence. In Nature's eyes, "one is just as good as the other," and both have a right to live. Anything which is destructive to the protoplasm of microbes is likely to be destructive to the protoplasm of body cells as well. Germicides, which were introduced into our armamentarium during the Third Pathologic Era in surgery, have done an enormous amount of harm when employed without knowledge of the fact that they are injurious to body cells. Many germicides killed not only inimical microbes but also those body cells which should have been left physically free to resist the entrance of microbes of any sort. In addition to the use of germicides, detailed cleansing of wounds which had for its purpose the removal of products of infection sometimes exhausted the natural store of energy of the patient and left him less well equipped for taking up his personal cell fight against microbes. Further than that, our confidence in measures for securing asepsis and antisepsis—together with improved methods in anesthesia—led us to forget that when operating we were at work upon a living sentient organism.

Operations which were conducted speedily were held to be carelessly performed operations because of neglect of petty technical details. Operations conducted through short incisions were held to be incomplete because "They failed to expose all of the pathology"—quoting a familiar form of expression at that time. Operations which failed to allow of thorough removal of products of infection by way of surgical art were considered to be extremely risky

procedures, and diametrically opposed to all that had been learned of bacteriology, antisepsis and asepsis.

The real issue, it seemed to me, was this: When a pathological condition was to be brought under control, should the patient's physiology or the surgeon's detail-work be allowed to dominate?

Here was a scientific problem. To decide it scientifically, one must determine by a critical survey of available facts the best means of approach, choose methods apparently suitable for establishing proof or disproof, conduct experiments to test the efficacy of the methods, adopt successful ones, and thus assemble data upon which to formulate a general rule of procedure.

Every test supported my hypothesis: The patient, on the whole, is his own best antiseptic.

Unless the reader chanced to be on the scene at that period he cannot readily appreciate how radical this proposition was.

In the Nineties it was customary for surgeons to treat cases of appendicitis in which there was infection of the peritoneum by making long incisions which caused shock. Incisions suitable for killing bears were being applied to weak patients. Surgeons made multiple incisions for purposes of drainage and these also caused shock. At that time gauze packing and large drains were used in great quantity. The mere presence of such foreign lumber in the abdominal cavity brought on shock and prevented the patient from readily summoning his own physiological resistance factors.

I asked the profession what would happen if ten hearty policemen were to be brought from their beats to the hospital and a yard of gauze inserted into the peritoneal cavity of each one of them. Would they be doing as well as

expected next morning? Yet, this was accepted treatment for abdominal infections for a while. Patients sometimes had to be given an anesthetic when adherent gauze was removed for change of dressings. In addition to ordinary packing and drains, iodoform gauze was commonly used, and this had a special death-rate of its own because of insidious iodoform poisoning—the symptoms of which are so like those of sepsis that deaths were set down to the account of sepsis when really due to iodoform. A well-known surgeon told me that he had not seen a case of iodoform poisoning in his wards. I seemed to recognize at least one as we went through and persuaded him to have urine examinations made. To his great surprise, we found three such cases in that one ward.

It is almost impossible to persuade nurses and assistants to avoid wiping or washing a healing wound. They are impelled by a love for gross cleanliness which would appeal to a kitchen maid. Fourth Era surgery recognizes that pus on the surface of a healing wound contains few if any harmful bacteria. If it is likely to macerate new repair cells we may apply pressure over a perforated water-proof protective covering which guides epithelium cells instead of entangling them as gauze does.

Dawbarn demonstrated that pus could not all be removed, anyway. He poured milk into the abdominal cavity of a cadaver and then tried to get it completely out. It cannot be done, but such an important experiment attracted almost no attention at the time. Enormous damage was being done to the endothelial layer of the peritoneum by the cleansing methods. One single layer of cells upon peritoneum as upon skin is all that stands primarily between us and microbic disaster. The single layer of endothelium cells or of epithelial cells are the thin birch bark

of a perfectly safe canoe in dangerous rapids. If the birch bark gets a hole in it we must have help quickly. When we get a hole in our epithelium or endothelium, Nature rushes help to our single layer of protecting cells and plugs the hole.

Operations which might have been completed in twenty or thirty minutes were often extended to an hour or even two hours in duration in order to allow perfection of operative technic. Meanwhile, like peas rolling out of a hole in a bag, energy granules were going out of the patient's brain and nerve cells. But we did not realize that the central nervous system was being injured until Crile led in the telling about it. Neither did we fully understand that all of the machinery of the ductless glands, arranged by Nature for purposes of meeting infection and conducting repair, were also being thrown out of gear by operative surgical shock.

When Metchnikoff and Wright came into the fields of pathology and physiology with their enlightening description of the phagocytes and opsonins with which a patient destroys his microbes, their research work enabled me to formulate a new general method of procedure, based upon principles belonging to the physiology of natural cell protection. In this Physiologic or Fourth Era we were to conserve the natural resistance of the patient and to turn him over to himself—to his own phagocytes and antibodies—as quickly and helpfully as we could. The surgeon would merely turn the tide of battle between microbe and body cell. He would "get in and get out."

Surgeons were overlooking the fact that every man would inevitably die as the result of a pin-prick were it not for the resistance to microbic invasion which was offered by his protecting body cells. I noticed that ability to

resist infection was greatest in pin-prick cases, and that resistance diminished proportionately as a wound was larger than a pin-prick. A natural deduction followed—the nearer we could bring a surgical operation to pin-prick proportions the better the chances of that patient for meeting infection with his own internal resources. Step by step, I began to make shorter single incisions. Gradually, I omitted pads "for protecting the peritoneum," and strove to do away with extensive drainage apparatus, even when wide infection was present.

Examination of purulent material in these cases showed it to be frequently almost sterile. Invading bacteria were at work chiefly in the tissue rather than in large collections of fluid, no matter how malodorous the latter might be. The odor was that of sulphur alcohols or sulphurated hydrogen due to the presence of various microbes, most of which were little more than saprophytes. When I spread purulent material over the normal peritoneum in the course of separating extensive adhesions, I noticed that it did not excite peritonitis. On the contrary, the peritoneum in the vicinity had called out a protective hyperleucocytosis, an extremely significant fact. It seemed best not even to remove purulent material that had become spread in the vicinity. This avoided shock.

As a result of work based upon such observation, I was able to present at the Academy of Medicine in 1896 statistics of one hundred consecutive unselected appendicitis cases with a death rate of 2 per cent. The report was shortly afterward published in the second edition of my book on the subject.

At the time when this report was made, most of the leading surgeons in New York had assembled at the Academy of Medicine for the purpose of combating my

views. They made a special effort to be present at the meeting, believing that my influence was injurious and must be strongly opposed. A very few of the speakers who discussed the paper accepted the report as presented. One or two of the first speakers intimated politely that perhaps a selection of cases had been made. One of the most prominent surgeons in this field of work then arose and complimented me upon my statistics, placing emphasis upon the word "statistics" in a way which left no doubt as to his meaning. When he had so boldly led the way, a number of others strongly denounced my methods. The chairman of the meeting, who was privileged to say the last word by virtue of his position, expressed the view that notwithstanding my statistics the method was difficult, dangerous, contrary to established principles, and not to be recommended.

Shortly afterward at a meeting of the American Medical Association in Denver, a Philadelphia surgeon who has done yeoman service for the profession and for the public, said in open meeting that my statistics were not to be taken seriously by the profession, as they represented the impossible. He declared that no one could do one hundred abdominal operations of my sort with a mortality rate as low as 2 per cent. I was in Europe at the time and could not make reply. Friends who were present notified me of the incident. There had been no malice or wrong intention in his attitude. It had been merely a desire to justify the larger death rate occurring at the hands of great surgeons of the day. Since that time better results than mine have been obtained by many other surgeons in lists of thousands of cases, but the incident is impressive as showing how many lives were being lost by surgeons who could not at that time believe my statistics.

One surgeon, whom I did not know personally, felt so keenly on the matter that he published in the *Medical Record* of December 12, 1896, a statement that "such fanciful statistics meant selection of cases" and that "operation must have been refused in the class of cases really needing the surgeon's kindly help." He wrote that "such figures are vainglorious cheats as attests of comparative skill." There is no way in which one can possibly malign a surgeon more than by stating that, in order to make a report favorable to himself, he had refused to help people who needed his skill. While such an imputation is often enough heard in careless conversation, my confidence in our profession is such, that I am certain no surgeon of high standing has ever made a selection of cases with that object in view.

My list consisted of a consecutive series of all the appendicitis cases that I had seen during the period covered by the statistics. Not one patient had been refused operation. The presentation of the report had not been made with any thought whatsoever of describing superior skill. I merely wished to show fellow-surgeons how application of a new principle might enable them to save more lives. I have always seemed to myself to be a sort of disembodied agent, trying to push into action better men than myself who would carry forward needed reforms.

Recently I happened to step into an operating room where a man of good surgical reputation had an appendix case with abscess. He needlessly made an incision long enough to allow him to pack off the area with gauze in order to prevent pus from getting upon the peritoneum. He then separated a heavy mass of dark, thickened omentum covered with lymph exudate in spots. He spoke of it as looking gangrenous and excised it—an extremely bad

fault in technic because it was loaded with protective materials. The time expended upon removing it meant extra shock for the patient, and a long, raw surface at the line of incision in the mesentery was extremely inviting for post-operative bowel adhesion, a very risky thing. After evacuating the abscess and removing a perforated appendix he inverted the stump of the appendix. This was a dangerous as well as unnecessary procedure because sutures in the cecum, fragile from interstitial infiltrates, would be almost certain to tear out if it subsequently ballooned; and secondary abscess or worse would then result. He next cleansed the abscess cavity thoroughly—more time and force expended upon unnecessary technic. Then the whole area was sponged with an antiseptic solution, which, coming in contact with the exposed peritoneum, would be practically certain to cause peritoneal adhesions. The peritoneal margins were then closed with chromic catgut which would remain for a long time and cause more adhesions. He should have used fine plain catgut. A small drain was properly inserted and this, to my mind, was the only right step in the entire process. He did not suture all muscle planes separately, and the patient would be almost certain to develop a hernia later.

His operative style and aseptic management of the set-up were perfect. This surgeon would almost certainly have a death rate of at least 15 per cent—in a class of cases that should give less than 5 per cent.

On the other hand, take the case, thirty years ago, of Hood-Wright Hospital. Its operative mortality rate in appendicitis cases prior to 1904 had been 30 per cent under Third Era principles. Dr. L. W. Hotchkiss, director, had been terming my methods "unsafe and actually dangerous," but when they were given a trial, the hospital

had a run of 76 consecutive appendicitis operations without a death. His report on the first seventy-two of these cases was published in the *Medical News,* July 2, 1904. He told me later that there were four deaths in the next twenty-eight cases—a 4 per cent death rate instead of a 30 per cent one in a series of one hundred consecutive cases. If the surgical death rate in appendicitis at Hood-Wright Hospital had not been so great, Hotchkiss would probably not have changed methods. It would pay many hospitals of today to follow his example.

My first formal presentation of principles of the Fourth Era of surgery was made before the Section of Surgery and Anatomy of the A. M. A. in 1908 and reported in the *Transactions* for the year. I used the term "Fourth Era of Surgery" at the International Medical Congress at Budapest in September, 1909, and published the idea in *Surgery, Gynecology* and *Obstetrics* for December, 1909. In 1910, Saunders published my little book, *Dawn of the Fourth Era in Surgery.*

Calmly presented scientific papers by other authors bearing upon the same subject at the same time were being overlooked by busy surgeons who felt safe with Third Era methods. Dr. John G. Clark of Baltimore had given the profession a paper of vital importance—closure without drainage after pyosalpinx operations. Because significant papers like Clark's were being thrust aside, I employed a style in presentation which was harmful to me personally, but more effective than the calm science that was being loaded upon an already overburdened profession.

My statistics seemed only to irritate colleagues and I apparently stood practically alone for a long time against the well-defined conviction of Third Era surgeons the

world over. Curiously enough it was this very type of surgery for which, years earlier, I had made my first and most vigorous fight against the almost united opposition of the surgical world. Having finally adopted those principles, the surgeons were now opposing my advocacy of the newer Fourth Era ideals with an equal degree of vigor. Other surgeons were also trying to put the Fourth Era across, but there was a shortage of spokesmen who could catch the ear of the profession. It was mostly tail hold on the bear.

When trying to capture an elusive and sometimes distant audience I had to practice at shaping phrases in such a way that they would set men to thinking angrily, the main thing being the overcoming of that dread deadweight in all human affairs—complacent inertia. In the course of big game shooting when I tried to steal up quietly within range of a bear, he would just as silently steal away and go to eating nice blueberries in some other place. If he could be wounded at long range, however, and made furious, we had a violent close-up instantaneously, and one of us always got the other's pelt.

Mark Twain once remarked that in writing or in public speaking, "The difference between the right word and almost the right word was the difference between lightning and the lightning bug."

I described the long incision as a "ghastly gash," and was promptly attacked, as had been anticipated, for "alliterative ribaldry," "sensational levity," and "cheap notoriety." These attacks proved, at least, that somebody was thinking and that was all that had been desired.

Two of our foremost teachers in the profession took the trouble to write letters of approval, saying that I was forcing surgeons to think. Another phrase which amused

some surgeons and irritated more of them was "committing taxidermy" upon patients by stuffing their abdomens with gauze.

Dr. J. E. Stillwell called me to see a man of very important position who had a rapidly advancing appendicitis. When I arrived, two of the man's business partners insisted that another man, Dr. Bull, take charge. Dr. Stillwell immediately felt the situation very embarrassing. I stepped to the telephone, called up Dr. Bull and related the circumstances. He talked with the partners, but they remained obdurate, and Dr. Bull was called in. He promptly said that if he was to do the work the patient must be transferred by ambulance to his hospital in Thirty-Third Street right away. This was done; when everything was ready for the operation, he turned to me and said: "See here, Morris, you must do the operating." "No, Sir," said I, "it wouldn't be fair to the other people and it would be presumptuous on my part."

But Bull insisted—"That's for me to say. Besides, I want to see your method applied in this sort of case. If you are so stubborn, let's make it a compromise. I'll operate and you direct each step."

"All right!" I agreed. "First a three-inch incision."

"What about the products of infection? I can't pack off the area with gauze through such a little opening."

"Don't pack it off. A long incision is bad enough but gauze pads are worse because they insult the peritoneum. The pus itself will likely enough be nearly sterile anyway."

"Maybe that's so. Now I have the appendix worked loose. The end of it looks gangrenous. I can't free the cecum and get the appendix up through this little crack."

"Don't free the cecum. It would break up too many protecting adhesions and muss the man all up."

"Muss him all up! Well, that sounds like one of your expressions, but what then?"

"Snap a pair of long narrow forceps down on the base of the appendix, break off the appendix with your finger, leave the forceps on until tomorrow, they will help to keep the drain route open."

"But we may get a fecal fistula," Bull protested.

"Sure enough! But you might get one anyway. You know they close quickly by themselves if not meddled with. What would the patient prefer to have—temporary fistula or a permanent pair of wings?"

"The lesser adornment probably, but wings are not a necessary alternative," said he.

"Perhaps not; and he really may not get a fistula, so there you are!"

"How about sponging out all of the wound area thoroughly?"

"Go easy on that. Sponge out the bulk of any fluid very gently, if you like, but leave the rest to the drain."

"What next?"

"A cigarette drain—carried to near the bottom of the wound but not quite to the cecum. Leave room for exudate or blood clot to seal in that weak spot when the forceps come off. A tiny strip of iodoform gauze between margins of the wound in the abdominal wall to prevent superficial structures from crowding the drain at that point. Plain catgut for the peritoneum. A few chromic catgut sutures for closing most of the wound but do not close too snugly up to the drain. Give it a chance."

"How about changes of dressing?"

"Change the outside absorbent dressings three or four

times or more during the first twenty-four hours, but don't disturb the drain. Go by guess after the first day."

Dr. Bull turned to his assistant:—

"What do you think of this operation, Walker?"

"Now that it's all over I don't seem to be as much scared about it as I tried to be."

The patient made a good recovery.[1]

A patient usually retains a great fund of natural resistance during the first fifteen minutes of an operation, no matter what is being done. He is usually depressed after an hour of operative procedure, no matter what is being done. It seems well, therefore, for us to attempt to keep within the fifteen-minute limit wherever possible.

When the matter came up for discussion one day in a little group of surgeons, I agreed to have my next dozen consecutive operations timed. None of the operations was done as quickly as I had previously done similar ones, and two of the operations required more than the average length of time. They were, however, a fair illustration of the advantages of "getting in and getting out." A common criticism of this practice is that important details may be neglected. That was a matter for my audience to decide.

All these operations, except prostate cases, were done in the presence of my class at the Post Graduate Medical School. It is not desirable to operate against

[1] Dr. J. B. Walker, associate of Dr. Bull (deceased), would not be expected to remember details of an ordinary incident occurring in the "day's work" more than thirty years ago, but it meant much to me because of almost universal opposition coming from a conservative profession at that time. In answer to my question Dr. Walker writes on March 25, 1931, "I cannot quite recollect the details of the incident—but I do remember that after you had published an article on your technique Dr. Bull was much pleased with it and used it in his operations. We all felt that this short incision of yours was a very great advantage as insurance against hernia."

time, but it is worth while to make every move count, and to see that the work is not unduly prolonged.

Here are the twelve cases. They are consecutive cases with the exception of minor procedures which do not belong in the list. The time recorded was the time from the beginning of an incision to the tying of the last suture; or, in cases without suturing, to the moment of application of the dressing.

Case I. Boy, nineteen. Interval appendicitis; appendix entirely buried among dense adhesions.

Operation: McBurney's gridiron incision one and one-half inches long, removal of appendix and suturing of separate tissue planes of the abdominal wall with catgut.

Time: Sixteen and one-half minutes.

Result: Primary union and patient out of bed on seventh day.

Case II. Man, twenty-nine. Gangrenous appendix, old and new adhesions.

Operation: Gridiron incision one and one-half inches long, removal of appendix and separate suturing of tissue planes with catgut. No drainage. Abdomen closed.

Time: Twelve minutes.

Result: Primary union and patient out of bed on the seventh day.

Case III. Woman, thirty-one. Extra uterine pregnancy; emergency. Hemorrhage; patient apparently dying. Intravenous saline solution of about 3,000 c.c. was given and operation deferred until the pulse could be counted.

Operation: Midline abdominal incision, many pints of blood and clots removed, oviduct removed; no drainage; tissue planes separately sutured with catgut.

Time: Twelve and one-half minutes.

Result: Primary union and patient out of bed on the fifteenth day.

Case IV. Man, sixty. Hypertrophy of prostate; bladder holding 20 ounces of residual urine; patient feeble.

Operation: Removal of both lobes of prostate through perineal incision and insertion of Ferguson's drainage apparatus.

Time: Five minutes for removal of the prostate and four minutes for application of drain and dressings.

Result: Patient out of bed on ninth day.

Case V. Man, twenty-three. Osteoma of left superior maxilla involving vomer and ethmoid bones.

Operation: Preliminary ligation of left common carotid artery and removal of superior maxilla (jaw-bone) and other bones through the classical incision.

Time: About five minutes for the carotid ligation, and about twenty-six minutes for the excision. Duration of anesthesia was forty-five minutes, as time was lost in getting and sterilizing a wire saw, the need for which had not been anticipated. A most difficult operation of its class.

Result: Primary union of all sutured structures. Patient was out of bed on third day after operation.

Subsequent History: An obturator, was fitted by Dr. F. L. Fossume; it not only held the cheek in normal form and allowed clear speech, but it carried teeth which restored the appearance and function of the lost maxilla.

Case VI. Man, thirty-three. Interval appendicitis, with one short adhesion band.

Operation: Local anesthesia with cocain. Gridiron incision one and a half inches long. Removal of appendix and closure of separate tissue planes with catgut.

Time: Seven minutes.

Result: Primary union. Patient was out of bed on third day, and gave a dinner to friends downtown on the fifth day against my knowledge or approval. An unwise stunt. He was a doctor who wanted to boast about it.

Case VII. Woman, thirty-five. Extensive peritoneal adhesions, involving omentum, loops of bowel and pelvic structures. Diastasis of *rectus abdominis* muscles following imperfect closure after previous operation.

Operation: Separation of all adhesions, and application of Cargile membrane for prevention of their recurrence. Dissection of sheaths of rectus muscles, and careful suturing of separate tissue planes. Patient was very adipose.

Time: Twenty-three minutes.

Result: Primary union excepting at pea-sized point. Patient was kept in a recumbent posture for eighteen days to avoid undue tension on a fatty abdominal wall.

Case VIII. Girl, seventeen. Dysmenorrhea believed to be due to cirrhotic ovaries. Extensive active acne of forehead and shoulders. Preputial adhesions.

Operation: Decapsulation of sclerotic ovaries through midline abdominal incision. Circumcision.

Time: Thirteen and one-half minutes for both operations.

Result: Primary union. Acne had disappeared by fifth day leaving small dry comedones. Patient was out of bed on fifteenth day.

Subsequent History: Decapsulation of the ovaries did not relieve the dysmenorrhea, but the acne which had been a distressing feature of the case for several years disappeared. Explanation cryptic. (Today I would not operate upon the ovaries in this case; endocrine treatment instead.)

Case IX. Woman, twenty-three. Extensive pelvic peritoneal adhesions. Perineum ruptured to second degree.

Operation: Midline abdominal incision, separation of adhesions, conservative treatment of ovaries and tubes and application of Cargile membrane to prevent recurrence of adhesions. Repair of perineum by semilunar incision and suture of *bulbocavernosus* and *levator ani* muscles in median raphe.

Time: Three and one-half minutes for the perineal operation, and nine minutes for the abdominal operation.

Result: Primary union of abdomen and perineum. Patient was out of bed on seventeenth day.

Case X. Woman, twenty-five. Extensive peritoneal adhesions of pelvis, including loops of bowel, omentum, uterus and adnexae; conservative treatment of right ragged adnexa.

Time: Fifteen and one-fourth minutes.

Result: Primary union. Patient was out of bed on the seventeenth day.

Case XI. Woman, seventy-four. Carcinoma of right breast; patient was extremely adipose.

Operation: Removal of breast, pectoral muscles, axillary and subclavicular glands and fat, which latter were firmly adherent to axillary vessels; buttonhole side drain for wick; the rest sutured.

Time: Twenty-six minutes.

Result: Primary union along the whole suture line.

Case XII. Girl, eighteen. Tuberculosis of diaphysis and epiphysis of left tibia extending into knee joint.

Operation: Excision of knee.

Time: Twenty-one minutes.

Result: Wound granulated safely in places where pri-

mary union could not take place because of shape of wound. Patient kept in bed four weeks. Good recovery.

With exception of the cases of excision of the maxilla and of the knee, the instruments employed consisted usually of a pair of scissors, a curved Hagedorn needle, a single-hook retractor, and two pairs of artery forceps.

I used scissors in place of the classical scalpel because with them there seems to be much less oozing of blood from small vessels and because the number of instruments is lessened. The argument that primary union may not follow the use of scissors is answered well enough by these cases without reference to further statistics. There's a difference in scissors. They must be of finest steel and I prefer a model with one sharp point and one blunt point. These may almost completely take the place of a scalpel in most of our surgery and they have a larger range of useful work in rapid operating.

Early in my operative career, I noticed that a number of surgeons used so many instruments, it made confusion for assistants. To show my class that operative surgery was, after all, a simple matter, I would sometimes do three or four abdominal operations in succession, using only a pair of scissors, a needle and an artery forceps, sometimes even dispensing with the forceps. Other instruments, of course, were sterilized and ready for use in case of necessity. My assistants and members of my class knew very well what I was trying to teach, but other surgeons felt that I was "simply doing a stunt." The stunt was talked about in various clinics throughout the country and I believed it had a direct effect in bringing into mind the idea involved.

When explaining to the class one day that the inch-and-a-half incision gave satisfactory results in a good propor-

tion of our cases of appendicitis which were not advanced in too many acute complications, I said that patients were obliged to stay in bed only ten days. Dr. Oppenhimer, house surgeon at the Post Graduate Hospital, leaned over and said in a low voice, "Ten days is a week and a half." I then said aloud to the class—"The inch-and-a-half incision results in only a week and a half of confinement." The response was immediate.

Shortly after this I published an article entitled "The Inch-and-a-Half Incision and Week-and-a-Half Confinement for Appendicitis Cases." It was at once taken up by medical journals not only in America but in foreign countries, and caused many men to remember that they also possessed a sufficient degree of skill for following out the idea. For purposes of amusement some of the members of the class added "an instrument and a half" to the formula. One of my patients suggested that I also add "a dollar and a half." These four halves happened to strike the tuning fork of a sense of humor in the profession, and did more to change the prevailing mode of thought upon the subject than any number of serious scientific or philosophical reports could have. It was quoted in St. Petersburg, Sydney, Tokio, Buenos Ayres and San Francisco.

Surgeons divided into two camps—those who objected to the introduction of technical difficulties and those who sought opportunity to exercise their own best degree of technical skill.

At a time when the controversy was most bitter, a Chicago surgeon, Dr. G. F. Lydston, came to me for a short incision appendicitis operation. He was out of bed in about a week, and two or three days later happened to call upon an old surgeon friend of his. Saying nothing of the operation which he had just undergone, he brought

up the question of appendicitis in general, and his friend said, "You know there is one damned fool here in New York who says that he can operate through an inch-and-a-half incision and let the patient get out of bed in a week and a half. I keep mine in bed for a month or six weeks." To this Dr. Lydston made no response. He told me afterward that he had felt his scar blush, but otherwise, his equanimity had been retained.

Boston was one of the last cities to adopt any of the principles belonging to the Fourth Era, at least in relation to abdominal infections, because a high degree of learning and skill had been developed in that city when the principles of the Third Era were throwing a great new light over the entire field of surgery. The better the surgeon the more difficult it is for him to put aside a fine structure of elaborate conviction, carefully built up according to his best conscience and intelligence, and approved by tradition.

When there was extensive infection from appendicitis, Boston surgeons were making multiple incisions for the purpose of introducing elaborate gauze drains into various parts of the abdominal cavity. In Baltimore, at the same time, patients were being practically eviscerated in order to allow of thorough cleansing of infected peritoneum. I was at that time making a short incision, doing little to the viscera, and using a tiny wick drain only—after a speedily performed operation—in other words, going only one step beyond the doctor who never operated at all in appendicitis cases.

The late Dr. Thomas L. Bennett, a famous anesthetist who had a very large experience with different surgeons, remarked one day that according to his observation the best surgeon is the one who acts all the while as though he

were afraid of waking the patient up. This would do well for an inscription upon a monument erected in his honor. Monuments are often erected for far lesser service to mankind.

I used Fourth Era principles chiefly in appendicitis cases, but they apply as aptly to other types of surgery. For example, to spare as much as possible the sufferer of pyosalpinx, bladder obstruction, or perforated ulcer or bowel, I divided my operations into two parts. The first part simply saved the life. The second part was deferred until after the patient's strength had returned, and done sometimes a few hours later, sometimes months later. I then finished the necessary repairs.

Pyosalpinx with peritonitis was treated first for the peritonitis, with the Clark opium treatment and local applications of ice. In two or three days, upon opening the abdomen, tubes were not removed even though their lumens had become closed or contained purulent inclusions. At times there was a ragged mass of adhesions, among which it was difficult to distinguish ovary from swollen broad ligament. I split the tubes wide open clear down into the cornu of the uterus, lifted them up to the anterior abdominal wall, and sutured them there with catgut close to the incision and on either side of it. A small drain was then introduced, and the incision closed. Next, the vagina was packed with lamb's wool carrying an astringent hygroscopic mixture (Marion Sims' old formula in a four-ounce mixture, one ounce of boroglyceride, three ounces of glycerin and a drachm of powdered alum). Lamb's wool holds this mixture in tampons and the wool does not become hard and irritating like gauze or cotton. Then, where it is obtainable, a stock vaccine of the principal

organisms in the case is employed—sometimes for weeks —until infection is quiescent or gone.

Three months or so later, the abdomen is again opened in order to free the tubes with a sweep of the finger. Sometimes they have already become separated. Nature is so insistent upon preserving the procreative mechanism, that they may, curiously enough, have again assumed a rounded shape. A lumen may have formed spontaneously, and fimbriae of the ampulla which may not have been visible at the time of operation may have become renewed. This often happens. If the ampulla has again closed in club shape it is re-opened and filled with thymol iodide powder. Fimbriae will then grow out from latent cells, as may be determined if there is occasion to operate again for further separation of adhesions.

This procedure was wholly opposed by gynecologists who sometimes removed not only tubes and ovaries but argued further that the infected uterus should be removed also. Devastating pelvic surgery in these cases became so revolting that it was considered best not to operate at all, or perhaps for late complications only. Aside from my own assistants or students, I did not know of a single operator who was willing to drop Third Era principles and move up to this Fourth Era procedure.

The beautiful young daughter of a colleague developed an acute double pyosalpinx with abscess. While I was operating on her, two other members of the visiting staff of the hospital came in. They made no comments in the presence of nurses and assistants, but afterward one of them said, "Your treatment of pyosalpinx may subject the institution to serious criticism." A couple of years later I received a letter from an older sister of the young lady, saying that the family wished to share with me their

joy upon the birth of a fine boy to her dear young sister who had been married a year previously. I immediately sent the letter to one of the gynecologists who had been worried, and asked if that did not compensate for risk to the institution.

Fourth Era treatment of pyosalpinx leaves a risk of extra-uterine pregnancy, but that need not worry us much provided the patient understands the situation and is ready for prompt operation if it really appears. I operated on a pyosalpinx case by Fourth Era method. A year later the patient had an extra-uterine pregnancy, for which I also operated. A year or so after that she was delivered normally of a fine daughter—a charming addition to a world which would be deprived of her presence had Third Era principles had their way with the mother's case.

Even with extra-uterine pregnancy we may still save the oviduct in some cases by resort to one little trick. Conventional surgeons remove the tube because it looks so ragged and oozes like a sponge. Ignoring convention, we may ligate the entire mass with plain catgut placed near the uterus. This stops all bleeding and the mass becomes a big graft kept alive by lymph circulation in the neighboring peritoneum until the catgut becomes absorbed. A catgut ligature placed around an entire oozing uterus will render similar service. In one such ligation of a big, ragged, shapeless, oozing tube, I found it almost a normal tube at a subsequent operation a year or so later.

The value of a two-step operation in prostatic surgery has only recently been appreciated. The first operation simply arranges for drainage. The prostate is not removed until kidney function has regained natural physiological balance.

In supra-pubic bladder operations for stone and for

enlarged prostate, consensus of opinion in the Third Era dictated that the patient was to remain nearly motionless upon his back for several days, while painful sterilized tubes drained bladder contents over into a sterilized receptacle beneath the bed. When applying Fourth Era principles in these cases I often had the patient sitting out of bed in an easy chair in a day or two with a very small drain passed through a layer of iodoform gauze next to the wound which discharged into pads of sphagnum moss. Such pads could be changed hourly if desirable.

I have been among Indians whose women use this moss for monthly neatness and for packing about the little papooses instead of diapers. They employ it also for wound dressings. Even when used in natural form it seemed to remain sweet and prevented free development of organisms for some hours. For surgical purposes I swell the dried moss in a tub of saturated solution of borax—or boric acid, squeeze it out and store it, slightly moist, in large glass or earthenware receptacles. A handful is easily rolled into a pad covered with gauze one layer thick and fastened with a safety pin or wooden toothpick. Sphagnum moss may be obtained cheaply from any dealer in florist supplies. I do not know how far it may be trusted, but there are numerous reports available relating to experimental work with it.

After development of principles of the Fourth Era, cases of so-called acute gastric dilation or atonic ileus practically disappeared from my abdominal work. I frequently saw them, however, when called in consultation. This desperate situation appears to originate from shock to the innervation of stomach and bowel—mostly avoidable. Such cases are often held to be hopeless. Yet, when the patient is turned over with the abdomen upon a pillow

to lift the stomach and unkink obstruction at the pyloric bend, he will almost always begin to be relieved at once. Add to this: gastric lavage every two hours (surely emptying his stomach of gas and fluid), and temporary narcotization with opium, and the patient will quickly recover. The best way to avoid disaster in these cases, however, is to not have them. The large literature upon this subject will become very small when Fourth Era principles are generally adopted.

In typhoid perforation, a Third Era surgeon makes an ample incision, followed by considerable search for the site of a perforation. This is found and sutured. But tissues are so fragile with interstitial infiltrates that they hold sutures about like cheese. The patient is having trouble enough already without any such added burden. Fourth Era surgeons employ a wholly different procedure. An operation requiring about one minute is done to insert a drain to the general region of the perforation, without looking for the actual hole. Regional or local anesthesia is used. This procedure was introduced when, years after a typhoid perforation without operation, I found fecal matter encapsulated among old adhesions.

In acute gastric or duodenal perforations, a Third Era surgeon cleanses the peritoneum religiously and sutures the opening, which is sometimes found after laborious search and much protest from the solar plexus. A Fourth Era surgeon, on the other hand, quickly inserts a simple drain, through a small incision, to the general region of the perforation, again without looking for it. He then allows the peritoneum to care for itself under Ochsner starvation principles. H. A. Singer, in *Archives of Internal Medicine* for June, 1930, presents a study of forty

cases[1] of spontaneous recovery from perforated peptic ulcers; perforated, remember!

A theoretical objection to treating acute duodenal perforation by Fourth Era methods is that fistula will follow and require secondary operation. This is the rule, but, under conditions of neglect, spontaneous closure will occur, just as it does in an appendix fistula. I discovered this accidentally by neglecting three of my fistula patients for a salmon run. On my return, all of the fistulae had healed.

In cases of tuberculous glands of the neck, Third Era surgery makes extensive excision. Nerves may thus be injured, with deformities resulting. Forceps clamped upon a blood-vessel may include the vagus nerve, and cause the heart to stop. The manipulations may light up an acute miliary tuberculosis. At the very least, ugly scars result. The Fourth Era surgeon, on the other hand, in these cases, simply evacuates fluid from completely broken-down glands with a hypodermic syringe, at intervals a week or so apart. The remaining glands are subsequently treated by the "hyperemia principle," i.e., a hot water bag alternated with an ice bag every fifteen minutes for two hours a day. This wipes out these enlarged glands by way of an induced hyperleucocytosis leaving a fair neck in place of the scarred one that goes with Third Era surgery (if the latter patient lives).

It had not occurred to me that the surgery of eye work included so definite a field for application of Fourth Era principles until I read a paper on the subject by Dr. L. Webster Fox in the *Medical Review of Reviews* for October, 1930. Dr. Fox says that "every surgical operation is attended by surgical shock and surgical trauma. Our

[1] Three more cases were reported by Dr. Singer in the *Journal of the American Medical Association* for January 13, 1934.

feeling is that both of these factors are proportionately reduced as surgical skill is developed. A technic that inspires a feeling of security encourages delay in the operation and discourages ambition to perfect the operation itself. In the pre-anesthesia days surgeons were compelled to develop such skill, and as a result, the brilliant surgical advances of ophthalmology are all to be found in that period. In the post-anesthesia and aseptic period the complicated preparatory and supplemental procedures in operative ophthalmology predominate. Our conviction is that the less the manipulations and trauma in eye surgery the better will be the results both immediate and remote, and the less the period of hospitalization." This comment by Dr. Fox comes as something of a surprise for surgeons who commonly associate the idea of surgical shock and trauma with major operative work only.

It is this "technic that inspires a feeling of security" that has been so disastrous to perfection of operative skill in general surgery. The Third Era surgeon has felt so secure in his asepsis and his anesthesia that he has forgotten all about his drawing and perspective, as an artist would say. He gratifies his fetishism—surgical art for art's sake.

Not long ago, as I was preparing to do a gall bladder operation, I noticed that two young members of the hospital staff seemed surprised that I donned rubber gloves. The other doctors came in shortly afterward and even remarked about it.

Recently, one of our older surgeons introduced his son to me, just out of a modern hospital, with the remark, "Dr. Morris operates without rubber gloves." The son looked at him astonished and exclaimed, "Why, that can't be so!"

These incidents flashed my thoughts straight back to my feeling as a young surgeon toward Lawson Tait.

The rubber glove is the fetish of a formula. I consider it criminal to operate upon a hernia case without wearing gloves, and equally criminal to put them on for working out an adherent appendix four inches away. Protecting against infection in the one type of case, it invites infection from the air in the other type because operation done by the sense of sight requires a larger wound, longer time, and more handling of viscera. Surgeons who have not been quite clear about my position in the matter now have it in concise form.

The sense of touch is far more accurate than the sense of sight because it is more intimate. A trained finger among adhesions gets "the rebound" from a buried ovary or gall bladder a long distance away. My old friend Joseph Price, the most dextrous abdominal operator whom I have ever seen at work, said that when he got among complicated adhesions he always felt like asking someone to tie a blindfold about his eyes. Working by sense of touch among adhesions, one may locate a buried oviduct in a few seconds, when many minutes might be required to find it by the sense of sight.

By touch, an appendix buried among adhesions may be whipped out in thirty seconds, where by sight thirty minutes would be required. In both cases, the visual operator is in constant danger of damaging a ureter or an iliac vein, which are easily enough distinguished by feel among the densest adhesions, but are indistinguishable visually.

Dr. Jacob Sarnoff, in an article entitled "Sutureless Appendectomy Incisions" in the *Medical Times and Long Island Medical Journal* for January, 1932, gives an important account of adoption of the short incision principle

in cases of appendicitis with gangrene and peritonitis. His incisions are so short that no suturing is required, the small space being occupied by one or more wick drains. Five minutes of time often covers the entire operation. His technic was successful in a case of gangrene of the appendix in a woman of seventy-two weighing 350 pounds. The most obese patient I have had in a similar case weighed about one hundred pounds less than this.

Picture Third Era surgery in cases of this kind! An enormous gash through fat and through feeble, fat-infiltrated muscles; a mauling of heavy adherent masses of mesentery, omentum and bowel; and if the patient has the unusual luck to get that far, subsequent hernia and irritating adhesions. And imagine the jeers and laughter coming from twelve thousand billions of microbes already present in such a case at sight of the approach of a rubber glove!

CHAPTER XII

APPENDICITIS

I HAVE done practically every kind of abdominal surgical operation, and furnished a contribution on Abdominal Surgery for *Sajous' Cyclopedia*. Out of a professional lifetime of such experience, I know of no operation presenting more difficulties in its surgical technic and medical management than acute appendicitis, and there is perhaps no other surgical disease presenting so many complications.

Removal of the stomach sounds to the layman like a great operation, but I do not know of any good surgeon who cannot do it easily. This same surgeon is balked now and then by the difficulties of an appendix operation. There are cases where he may not even try to get one out, but where the tyro tries and the patient dies.

In Africa, when a lion leaps out upon a herd of zebra and makes a kill, the rest of the herd merely trots off to a distance and goes to grazing again. There is consensus of opinion among them that this will happen now and then. They take their death rate for granted. This little study in comparative psychology explains the surgeon's complacence over his appendicitis death rate. We behave like zebra.[1] We toss appendicitis death rate statistics

[1] Dare I remind a surgical reader of the darky boy at the zoo, who concluded a prolonged study of the zebra with the quiet comment—"Nuffin' but a spo't model jackass."

aside as being something impersonal. They are not impersonal. You and I simply have not been included among them as yet. It is your own beautiful daughter who is dead. It is your own fine son who is dead. It is your own brother who is dead; your own sister who is dead. It is your beloved mother who is dead; your honored father who is dead. It is your cherished friends who are dead. That's what death rate means!

Think of it that way. Then see what can be done about getting a death rate of 15 per cent in one locality down to a death rate of 2 per cent as it occurs in another locality in the same class of cases. Find why it is that for every hundred appendicitis operations in one locality there is a loss of a dozen more daughters, sons, brothers, sisters, mothers, fathers and friends than there is in the other.

An occasional death must occur from complications such as mesenteric thrombosis—infection of the portal vein, liver abscess, septic pneumonia, or general bacteremia. Now and then a patient with diabetes, uremia, or heart disease fails to carry the burden of the added appendicitis, despite the most expert management. A woman who aborts in the midst of septic appendix complications is in grave danger. A septic embolism in the lung, a peritonitis or a sub-phrenic abscess may get out of hand. But these are so small a percentage of cases on the whole that many a master-surgeon can keep his death rate rather close to the 2 per cent point in consecutive series of hundreds of cases, all complications included.

In the bulletin of the American College of Surgeons for April, 1928, Dr. Charles E. Phillips of the Los Angeles General Hospital shows the mortality rate there to have increased 31 per cent for appendicitis, 72 per cent

for peptic ulcer, 77 per cent for gallstones and 250 per cent for goiter operations.

In the *Journal of the American Medical Association* for May 2, 1931, Dr. John A. Bower reports upon an elaborate survey of the subject of appendicitis in Philadelphia. His report included 364 surgeons in 27 hospitals, and 5,121 patients. In one hospital in which appendicitis mortality rate was 11.2 per cent, several of the surgeons had no mortality at all—one had 3.3 per cent and another had 20 per cent! Dr. Bower states very aptly that "the mortality from appendicitis decreases with the experience of the surgeon." If patients of the surgeon with 20 per cent death rate had been operated upon by the surgeons who had no death rate, a good many families would have retained loved ones in their midst.

In 1929 Dr. Frederick L. Hoffman of the Prudential Insurance Company of America published a very elaborate report upon appendicitis statistics covering a large number of cities and countries. The death rate from appendicitis in sixty American cities rose from 13.3 per 100,000 in 1910 to 15.7 in 1920 and 18.0 in 1929, the highest rate for any country in the world so far as statistics were available. In Italy, the appendicitis death rate per 100,000 from 1921 to 1928, was 2.9. Insurance men asked me to explain this. It is explained by Phillips and Bower. The public stands the consequences.

Replying to the insurance people, I reviewed the history of appendicitis, pointed out that 1910 procedures gave a minimum death rate, and suggested that life insurance companies lend statistical aid to the A. M. A. and A. C. S. in a concentrated effort to return to those procedures, thus rendering invaluable public service while at the same time saving thousands of dollars for in-

surance companies and thousands of lives for the public.

An account of the differences of opinion on the treatment of acute appendicitis in a discussion at the Royal Society in London is quoted in the *Journal of the American Medical Association* for December 17, 1932. This sort of thing is a whole generation behind the times, like discussions of the same sort in our own country. A medical court for the purpose of adjudicating such questions will be one of those belated institutions which are eventually arrived at.

In medicine today, we have no codifiers, clearing houses or courts to give a clear accounting of the material at hand. Perhaps this belongs to Nature's great scheme of lavish waste. A million maple seeds are produced for every one that is to grow. Up to November, 1930, the *Index Medicus* had listed nine thousand two hundred and twenty-three contributions to the subject of chronic appendicitis, according to Dr. R. D. McClure of Detroit, and most of these contributions went to waste like so many maple seeds. Textbook articles and unlisted references would give us a grand total of more than ten thousand contributions to this one subject. There seems to be little for a student to do in such a case except to gasp, groan, throw up both hands, and then add one more paper of his own to the list. I trust this chapter will tend to avert such a calamity.

Forty years of dealing with appendicitis seem to me to justify the insertion in the following pages of a broad, condensed exposition of my knowledge and experience on the subject. If it prove too technical for the lay reader, he will scarcely need to be urged to skip it. But if statistics mean anything at all, there will be comparatively few

medical readers who will not find in it some things well worth their knowing.

Seven kinds of appendicitis are well defined; two acute, and five chronic. The acute forms are intrinsic infective appendicitis and extrinsic infective appendicitis.

In the first one of these, the ordinary sort, infection proceeds from tissues within the appendix; when not checked, it may extend outward to involve many other structures near and far, from bladder to parotid gland (in the neck). In the second and uncommon form of acute appendicitis, infection begins outside of the appendix, in the Fallopian tube, for example. Its tissues in such a case become involved from without.

Acute appendicitis becomes dangerous when infection has closed the solitary artery or when swelling of the organ renders internal layers bloodless and hence vulnerable to invasion by microbes. Sometimes the lumen becomes dammed, forming a septic inclusion. In both of the acute forms of appendicitis the area of tenderness on deep pressure occurs at or near the site of the appendix itself, the so-called "McBurney point."

A little chap came over to the office to get me to see his brother one morning. On the way to the house I asked him about the circumstances. "Last night Louis had a stomach ache[1] and Mamma sent for Dr. Jones the first

[1] I asked Dr. Francis M. Pottenger why the first symptom of acute appendicitis was commonly pain at the "pit of the stomach." Here is his answer: "In reply to your recent letter, I think the illustration appearing on page 148 of the fourth edition of *Symptoms of Visceral Disease,* which shows the connector neurons for the important thoracic, abdominal, and pelvic viscera, might explain the path of the reflex pain noted in the epigastrium in acute appendicitis. You will note that the small intestine receives its innervation from the thoracic segments Vth to IXth inclusive, regularly and of course there is some variation in this extending to more segments at times, and at times probably fewer. The colon innervation also runs from the IXth to the IId thoracic and the IId and IIId lumbar. The appendix being at the junction between the ileum and the colon could thus send

thing this morning. The doctor came over and said that Louis had eaten something that had gone wrong; and he told Mamma to give him some castor oil. After the doctor had gone I remembered about appendicitis and pushed on Louis's appendix. When I did that he yelled right out. We called the doctor back and he asked me to go and get you."

For all five kinds of chronic appendicitis there are two essential diagnostic points. Given these, any school boy may make the diagnosis as readily as this boy diagnosed the acute type. Decision as to which one of the five is present is not boy's work, however.

These five types in order of frequency are: First, that going with fibroid involution of the appendix; next, irritating scar tissue that has remained after previous acute attacks of appendicitis; third, syncongestive appendicitis where the appendix takes part in congestion of neighboring parts of the bowel (for example, as one of the regular accompaniments of ptosis of the colon); fourth, subacute inflammation of the mucous coat of the appendix along with low-grade inflammation of the mucous coat of the neighboring bowel (as in some of the so-called rheumatisms); lastly, lymphoid hyperplasia of appendix tissues going with the "lymphatic diathesis."

These represent irritative lesions rather than infective lesions although in the sub-acute inflammation in the second and third kinds there may be a bit of a menace. Some cases with the appendix partly scarred but still partly secreting may at times present an infective lesion.

---

back its impulses to these segments in the cord, which, being transferred to the thoracic nerves, would express themselves in the epigastrium at the pit of the abdomen. There seem to be so many vagaries in these pains that the explanation is probably more complex than we think. I believe our danger is in trying to simplify."

APPENDICITIS

During consultation with other physicians in cases of chronic appendicitis, I frequently see them looking for tenderness on deep pressure at McBurney's point. That's not the place for it; it has moved to a point directly over the site of the fused second and third sympathetic lumbar ganglia,[1] about two inches to the right of the navel and a trifle below it.

The other essential diagnostic point is distention of the ascending colon with gas. I call this the "cider barrel sign." Percussion over the ascending colon brings out a resonance suggestive of the cider barrel in June as distinguished from the resonance obtained from that same barrel the previous October.

In a number of textbooks we now find a description of the "Morris point" for the diagnosis of chronic appendicitis as distinguished from McBurney's point for acute appendicitis, but this is not quite the whole story. Both "ganglion" and "cider-barrel" signs must be found occurring together by the clinician before he can make the diagnosis.

They appear to be inseparable in chronic appendicitis; both of the points are absent in acute appendicitis.

Tabulating this:

(a) In chronic appendicitis there is *never* tenderness on deep pressure at the site of the appendix.
(b) In acute appendicitis there is *always* tenderness on deep pressure at the site of the appendix.
(c) In chronic appendicitis there is *always* tenderness on deep pressure at the site of the fused ganglion.
(d) In acute appendicitis there is *never* tenderness at the site of the fused ganglion.

[1] This is the nerve-center pierced when a skewer is passed perpendicularly through the abdominal wall of a cadaver at the point described.

(e) In chronic appendicitis there is *always* distention of the ascending colon.

(f) In acute appendicitis there is *never* distention of the ascending colon.

What is the explanation of these two essential diagnostic points in chronic appendicitis? Hypersensitiveness at the site of the fused ganglion appears to represent the kinetic of an efferent impulse sent there from a segment of the spinal cord or from a synapse, following reception of an efferent impulse received from an irritative appendix. There is no sensory nerve between the appendix and the fused ganglion.

When I brought the question up at a meeting of the Surgical Section of the New York Academy of Medicine, several anatomists were asked to be present for the discussion. Dr. Robert F. Weir, with his customary thoroughness, took the trouble to bring anatomical charts. But the anatomists could not explain it. My best guess was that we had a phenomenon analogous to superficial areas of response to stimuli situated in irritated viscera, as described by Sherrington, Ross, Head, and Sherren. In acute appendicitis the central inhibition is broken down steadily and the inflammation registers conscious "pain" continuously in the brain. In chronic appendicitis the central reception of impulses remains inhibited at vegetative level most of the time, and there occur only transitory "flashes of pain in the appendix region" or "pain there on some days" to quote the language of the patients. When I asked expert neurologists about the value of my guess in explanation for the fused ganglion sign, a far-away look came into their eyes and they remained silent.

When I asked Dr. Pottenger for his opinion, he re-

plied that our physiology of the internal viscera is often inadequate to explain the clinical phenomena; that the visceral afferent system is not sufficiently understood, and that the various synapses that occur require a great deal of study before we can understand our clinical phenomena with any degree of accuracy. In his letter to me he said: "I wish you men who see a great deal of chronic appendicitis would observe carefully whether or not there is superficial atrophy in the area you mention to the right of and below the navel. I can see how your suggestion of tenderness at the site of the fused ganglion would get you into trouble with the anatomists. I have had quite a little bit of difficulty myself in finding accurate description of clinical phenomena which I am positive exists. . . ."

Explanation for the "cider barrel sign" is simpler in its nature. The constant nagging from an irritated appendix wearies the innervation of the muscular wall of the ascending colon. It then relaxes and becomes distended with gas.

A brief description of what makes the appendix squeal in chronic appendicitis will suffice. In the first two forms, irritation is definitely caused by contraction of hyperplastic connective tissue upon nerve filaments which I have shown by photograph to remain in the scars. Scar tissue in the appendix occurs in the course of normal involution and as residue tissue after acute appendicitis. When fibroid involution with its scar tissue occurs in people past middle age it represents a normal process. When it occurs in young people it belongs among the stigmata of early physical decline.

The next two forms of chronic appendicitis introduce quite another cause for irritation. In these we have, instead of contraction, a swelling of the inner tissues of the

appendix. It seems that this swelling within the tight peritoneal sheath irritates nerve elements. We find regularly and often in our patients with the Glenard sagging colon and a dragged-out mesentery, mechanical disturbance of blood and lymph supply. A loose right kidney is commonly present in these same patients and they also have a short sternum (Mosher sign).

The catarrhal form of chronic appendicitis occurs secondary to chronic inflammation of the mucosa of the colon. In this case appendix irritation which leads to the two essential diagnostic points is apparently not caused by either contraction or distention of tissues, but merely by persistent irritation in the mucous coat. Lymphoid hyperplasia occurs chiefly in the young in connection with hyperplasia of other lymphoid structures of the body.

I wonder how many doctors who make a diagnosis of chronic appendicitis have read "An Anatomical Cause for Enteroptosis" by Dr. Eliza M. Mosher that was published in the *Archives of Pediatrics* for June, 1924. A good many enteroptosis patients who turn up in the offices of general practitioners have had the appendix removed and no attention at all given to the rest of the case. This rest of it was the only important part, and therefore removal of the appendix was worse than futile. Amateur surgeons unfamiliar with the two definite diagnostic signs for chronic appendicitis have advised the employment of long incisions, allowing them to make wide search "for something else" when they found nothing the matter with the appendix.

So far as surgical features go, both kinds of acute appendicitis really require prompt operation. In chronic appendicitis, on the other hand, operation is commonly

harmful for lymphoid hyperplasia; it is usually harmful for the cases of congestion going with the numerous cases of Glenard syndrome; and it is perhaps always harmful for "catarrhal" inflammation cases, for medical and not surgical treatment is required here. Operation is commonly harmful or worthless in fibroid involution of the appendix occurring in young people. Operation is often of some value in fibroid involution cases belonging to people who have scar tissue remaining after an acute attack of appendicitis. But, by and large, the majority of operations for chronic appendicitis as they are being done by the thousand today, are worthless or harmful.

Now for the two kinds of acute appendicitis in condensed version:

Extrinsic infective appendicitis in my nomenclature occurs rather infrequently. Sometimes infection from an infected Fallopian tube, or local tuberculosis of the peritoneum, extends to cause closure of the solitary artery or a swelling of tissues of the appendix, leading to vulnerability to infection. Various kinds of microbes then know what to do to tissues deprived of natural defense mechanism.

The most spectacular kind of appendix trouble is what I call *intrinsic infective appendicitis.* It attracts attention because of the violence of its processes. It is what doctors and laymen have in mind when speaking of appendicitis in the course of ordinary conversation.

The appendix like other vestigial structures is deficient in natural physiological defense mechanism and has vulnerable anatomy because of its lonesome terminal artery. This with its smaller blood vessels becomes obstructed in part or in whole in the presence of infection. It is because the appendix has but one principal artery that it is so

vulnerable. The appendix then loses natural protection; when white blood cells cannot reach or leave a region, tissues become vulnerable to almost any sort of microbe that comes along. Microbes may extend to each other the grace of symbiosis or on the other hand they may enter into a life and death struggle with each other for possession of the unprotected land of milk and honey. A dominant species of microbe that is present at a time when cultures are made may actually have had very little to do with the inception of the case. It may be riding along merely as saprophytic company, hitch-hiking with other microbes, so to speak.

Closure of the lumen of the artery may, perhaps, occur not only from tissue-affinity toxins but may even be a result of over-action of local antibodies in the presence of a toxin from microbes of some distant infection before the appearance of any one of the microbes that may be found later. Several kinds of microbes may cause gangrene by way of anatomy, but if surgeons will forget about microbes for a long enough time to think first of anatomy they may stop using "anti-gangrene serum," an over-refinement of present-day serum art.

After I had photographed terminal arteries closed by infection in appendicitis cases and had accepted tentatively the theory of elective affinity of tissues for toxins, a parallel situation relating to gastro-duodenal ulcer presented little of mystery to my own mind because a terminal artery was present in both of these cases. Aside from the microbe question, I still felt personal need of explanation for the frequent occurrence of G.-D. ulcer in emotional young women who were anemic and yet without definite foci of infection. If they often had spasm of the pylorus as a result of emotional discomfort then why

not spasm of walls of terminal arteries at the same time? Theoretically this could occur easily enough, but there seemed to be little chance of finding proof for my conviction.

Dr. Harvey W. Cushing, however, has suddenly come to my aid. We have known all along that the diencephalon or " 'tween-brain" played a part in digestive processes and that it was disturbed by emotional stresses. Cushing has now reported several cases in which gastric ulcer followed immediately upon removal of tumors from this part of the brain. Ergo: 'Tween-brain disturbances likely enough cause spasmodic closure of terminal arteries of the midgut region, very much as we have such closure in one form of Raynaud's disease. The tissues that have been supplied by the terminal artery which goes into spasm then become vulnerable to digestive disintegration and to bacterial onslaught. This explains why G.-D. ulcers and appendicitis so often occur simultaneously. The terminal artery of the appendix would naturally be affected by the very same influences which cause either spasmodic closure or infective plugging of a terminal artery of the G.-D. region. The microbe is nearest enemy at hand for destruction of tissues of an appendix that has become bloodless. On the other hand, the gastric juices are nearest enemy at hand for destruction of tissues of the stomach wall that have become bloodless.

The lonesome artery of the appendix may even be closed mechanically. When a football player's cecum is knocked out of place for a moment it may fall back and leave the appendix twisted upon itself. It may become doubled up and cramped also in one of the common anatomical defects known as a peritoneal pocket.

Some of the least harmful microbes give off at times a

highly offensive odor with their by-products of sulphur compounds or by-products of the indol group. This offensive odor is no more harmful to the patient than is the odor of Limburger, Camembert, Ramadoer or other delicious cheeses. I have seen a Third Era operator attack an abdominal cavity with the ferocity of a tiger because he did not like the smell. The patient perished from the effects of post-operative ileus toxins in the upper bowel. If the surgeon had simply done a five-minute operation, put in a little wick drain and then fallen back upon Ochsner starvation, Murphy drip, or hypotonic salt infusion and Clark opium, his patient would undoubtedly have been out of bed shortly and joining his family and friends at dinner. I feel sure that in my early days of work with physicians who did not operate there were fewer deaths from appendicitis on the whole than there are today as a result of refinements belonging to modern experiment—plus incompetent surgery on the part of men who have been handed a license to do as they please.

I would be almost afraid to have appendicitis today; but such was not my feeling twenty years ago. In the days of my first observation of these cases, 50 years ago, they were most often called "inflammation of the bowels" by certain old-time doctors, whose pneumonia cases were "inflammation of the lungs." Superior consultants needing to make an impression in that day referred to cases of inflammation of the bowels as ones of typhlitis or perityphlitis. Some of the patients were very ill or had recurrent attacks. They moped around for months, perhaps, with tedious convalescence or with some degree of permanent crippling of the bowel. They, nevertheless, muddled through somehow, as a rule, as far as really living was concerned. Of course, no one knows how many

died years later from impression made upon heart, kidneys, or mucous membranes by toxins resulting from chronic bowel disturbance.

The death rate and morbidity rate in appendicitis treated by master surgeons today becomes almost negligible when compared with the results of the best medical treatment, but master surgeons are not usually in charge. By morbidity rate I mean the length of time expended in convalescence, and bad results caused by complications like post-operative peritoneal adhesions or post-operative hernia. There is no question about acute appendicitis being a surgical disease. The question is now: Which surgeon? That's all!

When in the course of diagnostic work I developed a method for palpation of the appendix and published a report upon the subject, one of our best-esteemed medical consultants in New York said that the normal appendix could not be palpated by anybody. He looked upon anyone who made that claim as being mistaken or given to buncombe. His word carried weight, too. Edebohls, however, had also developed a palpation method. We were both demonstrating regularly before classes, and then presenting proof of the validity of the method in the operations that followed. Sometimes I glanced up at the audience and saw a dollar bill passed across the aisle as a bet between some old member of the class and a new member, when the operation showed that the palpation findings were correct or otherwise.

Things have changed. At the present time it is probable that the majority of expert clinicians in this country can palpate a normal appendix in the patient of average physique. The cecum is pressed to the right with a hand upon the left side of the patient's abdomen. Fingers of

the right hand pressed under the crowded-up cecum can then work the appendix out into the field so freely that oftentimes the patient can feel his appendix himself if it is brought near enough to the anterior abdominal wall. But palpation cannot be done except by following this exact method. Anyone who tries to poke a couple of fingers beneath the cecum will instantly have a resistant abdominal wall to deal with. A little smoothing of the abdominal wall first and then three gentle fingers pressed in flat will do the trick.

Students sometimes ask, "How about a case in which the appendix lies behind the peritoneum—or in a patient with a rigid abdominal wall—or an appendix in abnormal position from defective descent of the colon, or in fleshy patients?" Well! In such cases we can't palpate it. Palpation of an acutely inflamed appendix is dangerous as well as being unnecessary. Palpation for diagnostic purposes is appropriate in all of the kinds of chronic appendicitis and for purposes of differential diagnosis.

A number of deaths in appendicitis follow minor errors of technic. The amateur surgeon ties the stump of mesentery of an appendix too short. The ligature on so short a stump slips off when the patient gives too hearty a laugh. Hemorrhage from a small artery may not be very apparent for some hours and these patients are likely to die in the night when everybody is sleepy.

The operator when separating an adherent mesentery may make a small round hole in it and not take the trouble to close the opening. The patient retches when coming out of ether, forces a small knuckle of bowel into the hole in the mesentery, and develops fatal bowel obstruction with symptoms attributed to sepsis. A secondary operation is not done because of wrong estimate of the cause

for symptoms. Deaths are caused in about the same way if the peritoneal layer is not neatly sutured when the abdominal wound is closed.

Crushing the stump of an appendix with forceps must have some kind of death rate of its own, because crushing makes dead tissue and forces microbes into this dead tissue—just what they are looking for. Burial of the stump by a constricting purse string suture, when infection has made tissues of the cecum fragile with interstitial infiltrates, means that the suture will tear out if the cecum balloons as it often does after operation.

Simply ligating the stump of an appendix like an artery is all that is required, apparently, because Nature is all through with a vestigial organ like the appendix and does not try to open it up after closure. Nature will open up a Fallopian tube after ligation even if silk or silver wire are used for making the closure. She is bound to preserve the integrity of anything connected with the procreative apparatus. Nature is not quite decided about what she thinks of the cystic duct of the gall bladder and may or may not open it up after ligation. It is fascinating to the biologist to read the mind of Nature in her attitude toward closure of these three kinds of structure that are anatomically so much alike.

Bowel angulation from adhesions does not cause many deaths—perhaps one-half of 1 per cent. I would not talk about the point except that if each error in technic causes only one-half of 1 per cent of deaths after appendicitis operation then four such errors in technic made by one operator at each operation would make him liable to have a 2 per cent death-rate from wholly avoidable causes.

Perhaps the largest death rate from what I classify as faulty technic follows a determination to get the appen-

dix out at a stage in the case when the appendix itself has done about all of the damage that it can do, and surgical technic which would get it out would cost the patient too much. In cases of spreading peritonitis, for example, I now make a two-stage operation—(1.) five minutes for inserting a drain without removing the appendix, followed by Ochsner starvation, Fowler posture, Murphy drip, opium, and ice; (2.) the real operation, anywhere from two days to two years later, perhaps more. In the peritonitis of tubal infection, on the other hand, we may frequently gain such good control with these resources that even the five-minute operation may not be desirable. We may wait for a later date before operating for abscess or for adhesions.

In acute peritonitis treatment we stand midway between the devil and the deep sea. If peristalsis is inhibited, the spreading of infected peritoneal exudate is halted, but highly poisonous products of ileus may develop within the upper bowel. Both conditions are murderous. How then shall we choose? My choice has been placed upon a time basis. The toxic products of ileus require a longer time for killing than do the toxic products of acute peritonitis, the latter being more sure as well as more swift in their lethal action. We may commonly halt an acute peritonitis in forty-eight hours or less. Having first done that, we may then turn about and safely empty the bowel with an ounce of powdered alum dissolved in twenty-four ounces of tepid water injected slowly as an enema. If this does not act freely in less than a half hour we may then inject pituitrin hypodermically. Both kinds of active treatment would be deadly if applied before we had halted peristalsis for a sufficient length of time in advance of their application.

Surgeon, general practitioner, and nurses must all clearly understand each other. Take for example a case of rapidly advancing peritonitis. I recall one such in particular. Orders were given to first stop the vomiting with enough morphine to really stop it, regardless of the amount, because the exquisite pain of each and every vomiting effort would be as deadly as so many blows on the head with a hammer. Next, to get the respiration rate down to fourteen and keep it there until I saw the patient in the morning consultation. This was to be done by dropping a grain of powdered opium upon the tongue at intervals of an hour if necessary, following the Clark dictum that we are not to measure the opium but to measure only the respiration rate and control the cumulative effect. The respiration rate is an index to the peristaltic rate and that is what we are really after. Peristalsis has practically ceased when respirations are at fourteen. The patient's life is hanging by a thread. If the doctor or nurse does not stay right by the side of that bed, and wide awake all of the time, Atropos will use her scissors. In the morning, I found in this case that the doctor did not quite understand the difference between opium and morphine in peritonitis work. He had ordered morphine for "now and then" during the night and the nurses did not understand what was wanted; they should not have been asked to assume such responsibility anyway. Family physicians and nurses had been afraid to get the respirations down to fourteen to the minute. They split the difference. That is what splits a peritonitis patient. I should have remained with that case myself all night.

CHAPTER XIII

EXPERIMENTAL WORK

IN THE course of my experimental work, I have recorded in detail in medical journal articles or in my books everything that seemed to be of value to the profession. Notes in this chapter belong chiefly to reminiscence.

Very few men kept records of cases before 1890, and none of them had a follow-up method so far as I know. For this reason, many important discoveries were never brought to light, but have had to be discovered all over again later. Card index records and elaborate histories are now filed everywhere in all responsible institutions.

Some of us in former years set about making a follow-up of a particular class of cases, but the patients had often moved to new addresses and could not be found, or did not feel much like writing about results. Some of them gave accounts like statements by the Oracle at Delphi. On one occasion before the days of our modern filing system, when trying to find notes of a case that were somewhere in the drawers of some desk, I remarked to an old friend, Harold Gifford, that I was going to develop a good method for keeping accurate records. "You!" Giff said. "You couldn't keep accurate records of anything. Your function in life is to bring things down from out of the air for the rest of us to look over."

The performance of that function did not make my professional existence a peaceful one. My fate was often that of the inventor whose failures bring him disrepute or ridicule while his successes call forth a host of imitators, some of whom may surpass him. He is lucky if he receives credit for so much as his ideas. This chapter includes some of those ideas.

When I first suggested that the principle of capillarity in the form of a small wick drain enclosed in a waterproof covering would be invaluable in closing septic wounds, it shocked surgeons, just as they themselves were shocking patients by tucking masses of gauze into the peritoneal cavity.

Dr. Howard Lilienthal was one of the first to adopt the drainage wick at his hospital clinic. He and Dr. A. V. Moschcowitz called it the B. M. drain (short for Bob Morris), and it carried this name in other hospitals for a while but finally the nomenclature became "cigarette drain." The younger generation of surgeons can never know how I was ridiculed for introducing the principle of capillary drainage with this "toy," but some of the older men will remember. The wick now belongs to standard equipment of hospitals the world over.

The name "cigarette drain" which has come to replace my original one of "wick drain" has one great disadvantage—because of "what's in a name." Many a young assistant is more familiar with cigarettes than he is with the mechanics of wicks. Two widely separated principles are involved. A wick works through intake, a cigarette through output. It is the difference between coming and going. If a cigarette drain is inserted in the form of a cigarette only, it is a failure and denotes absence of mechanical soul on the part of an assistant. One end of

gauze must be pulled out of the waterproof covering just enough to introduce the wick principle—otherwise, the cigarette drain is a gesture and a dud.

An assistant who places a wick drain directly down upon a suture line or ligature point prevents plastic exudate from safely sealing off that area. If he cuts off gauze on a level with the rubber sheath of the upper end of a wick he instantly nullifies the principle of capillary action. One-quarter of an inch of mistake at either end of a drainage wick in some cases may easily cost a patient his life and is likely at least to introduce complications.

When observing the effects of apoplexy in post-mortem examinations, it seemed to me that if one might establish drainage very promptly in some of these cases and in cases of sub-arachnoid hemorrhage, the operation would at times be useful. I passed the suggestion about among friends, and shortly afterward Dr. J. C. Kennedy called me quickly to one of his cases of apoplexy. I put in a drain which certainly drained but did not save the life of the patient. Neurologists who observe the extensive injury to brain tissue are very skeptical about the value of an operation, but I still believe that in some of the slowly progressing hemorrhages surgery would be of great service.

The only suggestion of mine that was ever instantly taken up all over the world was a bad one. Certain laboratory workers had included peroxide of hydrogen among the germicides and I set out to experiment with it in practical application for the cleansing of wounds. At a meeting of the American Medical Association, the chairman of the section in surgery happened to remark that I was not down for any paper and asked if I would not fill in a vacant space of time near the end of a morning

session. The chairman was not crowded with papers then as he is today. In a few minutes I scribbled on the back of a program my observations up to that date on experiments with peroxide of hydrogen. These notes when published went into practically every medical journal on earth, in many languages. It brought that germicide quickly into universal application by the profession for a while, and into household use by the laity as well, as a result of extensive advertising by manufacturers.

In the right place and when employed by the right surgeon this germicide has special value. But peroxide of hydrogen when destroying microbes and septic fluids destroys at the same time granulation tissue, new hyaline epithelium, and new protective cells. Used just once for first treatment of a foul septic cavity or for the purpose of loosening adherent first-aid dressings, there is nothing to take its place so far as I know. When applied for cleansing purposes in a wound that is undergoing repair, or as a first-aid antiseptic, or as a mouth wash or gargle, the injury to normal cells may become a very serious matter. Delayed repair of wounds is an almost daily spectacle where doctors, nurses and laymen are charmed by the gross cleansing abilities of this germicide. The subject should never have been "released" at all—the bad effect has more than offset its value.

One of my really good suggestions has received little attention from the profession, as far as I know. Joint adhesions, after being surgically broken up, are prone to recur shortly. There are many cases of painful joints, particularly those of the knee and shoulder (so-called rheumatic joints of arthritis), that are caused apparently by elective affinity for bacteria or their toxins. It seemed to me that an artificial synovial fluid might be useful in

these cases. After some experimentation I finally chose a mixture consisting of one part of boroglyceride, three parts of glycerine and four parts of normal saline solution. This was similar to synovial fluid in physical consistency. Furthermore, it was antiseptic. And because it was hygroscopic, it had a tendency to draw serous fluids toward itself; consequently when injected into a joint, it resisted absorption longer than an oil could.

Using this in my clinic at the Post Graduate we had truly remarkable results in relief of pain in rheumatic joints and in prevention of early recurrence of adhesions in stiff joints after mobilizing them. In cases of tuberculosis of the hip and knee joints we could not obtain proof of extra benefit from injection of the artificial synovial fluid because we always employed fixation apparatus anyway and cure from it is expected. We felt sure, however, that the injection did accelerate recovery in such cases.

Oil is absorbed rather promptly. It is not germicidal and is not hygroscopic, but the idea of oil as a lubricant has already been "sold" to everybody and seems to have captured the imagination of the profession. The use of oil requires no mental processes out of the ordinary, while the use of an artificial synovial fluid requires a distinct mental process that is not automatic.

I told Murphy one day, early in my career, of attempts I had been making at anastomosis of blood vessels. I had reasoned that the endothelial lining of blood vessels would act like that of the peritoneum in making prompt adhesion. The experiment failed in two animals because of difficulty of asepsis. Murphy took up the idea at once, secured better results, and the method was then launched for the profession.

Later, when Matas had published his first paper on the employment of sutures for closing the arterial orifices in aneurism, Dr. Geib of Stamford, Connecticut, called me in on a case of very large popliteal aneurism in a man of middle age. As an experiment, instead of the customary extirpation, I constructed a new canal about three inches long through the axis of the aneurism by a running suture, and then trimmed out the heavy mass of remaining aneurismal wall. There was a moment of intense interest when the tourniquet was removed. Not a drop of blood escaped from the sutured line—the man's foot immediately became warm and there was tangible pulsation in the arteries of the foot. He was not only cured of the aneurism but had escaped the danger of gangrene. The fact that a new arterial channel might be constructed through an aneurism was significant, although months later the condition recurred, as aneurisms will.

In about 1900, I began to observe that adventitious tissues causing many complications occurred frequently in the vicinity of gall bladder, pylorus and duodenum. They seemed to be of two kinds. In a smaller number of cases, there was peritoneal defect due to persistence of embryonic remnants, such as Lane's kink and Jackson's membrane, neither of which had at that time been described. In a larger number of cases, there had evidently been a toxic destruction of endothelium leading to the formation of peritoneal adhesions. Most of the patients gave no history of peritonitis in that region at all, and it seemed to me that an insidious toxic process without notable acute symptomatology must occur there very frequently. Lane and I began almost simultaneously (in 1903) to write upon the subject of these toxic insignia left upon the peritoneum. His observations related to the

cecal region, of predominant interest to all of us at that time. Mine occurred higher up, and received little attention until I dubbed them "cobwebs in the attic."

Specialists in children's diseases were occasionally mystified about a moist navel or eczematoid inflammation in its vicinity, which sometimes persisted up to and beyond adolescence. In an aggravated case, I cut out the navel and in the laboratory found that the trouble was caused by persistence of remnants of the embryonic vitelline duct; we really had secretion of a sort of intestinal mucus, which was fermenting and causing the skin trouble. I cured this in a number of cases after that by lifting up the central protuberance of the navel with a little hook and snipping it out with curved scissors.

I conducted a number of experiments to determine if trypsin, pancreatic acid, and pepsin would liquefy, in situ, sloughs and coagula that were difficult to remove from cavities. It was found that pepsin acted best. With it, blood clot in particular could be turned into "treacle" so that it would run out in semi-fluid form from the bladder or thorax. Pepsin would also remove dead bone from deep channels and cavities after the dead bone had been decalcified with diluted hydrochloric acid. Experiments showed that neither the acid nor the pepsin had any effect upon living bone.

The question as to whether evolution is trying to do away with the clitoris was introduced by the frequent finding of this gland undeveloped and buried beneath an adherent prepuce. I investigated and found that because of the irritation caused by preputial adhesions, both girls and boys require circumcision in equal numbers. Imperfect cleavage in both sexes is apparently one of the stigmata of physical decline rather than an evolutionary

phenomenon. At some clinics today, the little surgical procedure for girls has become a matter of routine.

In the earliest days of the fluoroscope, I cured a case of chronic dislocation of the outer end of the clavicle by drilling a hole in it through a tiny opening and inserting a silver dowel pin. Shortly thereafter, I found that such a pin was particularly serviceable in some types of fractures of this bone where reduction without final deformity is impossible. I then experimented with it in various other fractures, and found that even in spiral fracture of the tibia with very oblique facets the pin would sometimes simplify the management of a troublesome case. A firm of instrument makers got up a complete set of tools for this work and with the aid of the fluoroscope it was possible to pin the fragments of properly selected fractures through very small openings.

In a case of broken neck following a diving accident I decided to open the spinal canal in the hope of relieving a possible pressure upon the spinal cord or perhaps of getting the divided ends of cord together by removal of one or more vertebrae. None of the physicians in the town was willing to assist in any such operation, and I had to bring two assistants from New York. Meanwhile news of the operation had spread and a great deal of opposition to it had arisen. I was advised that if any untoward outcome were to occur, the sheriff had been notified and would take charge of the situation.

The young man belonged to a church almost across the street from his home. At the moment when I began the operation, someone gave the signal and the church bell began to ring. The operation was completed with the church bell tolling and the sheriff in waiting. It was found that the spinal cord had degenerated at the site of

the injury and had become a fibrous string so that no relief was possible. Fortunately, for both of us, no harm was done. Since that time thousands of operations have been performed for the purpose of relieving pressure upon the spinal cord. Furthermore some of the physicians who had refused to take part in that first operation later became friends of mine and called me in consultation.

Mistakes in experimental work are sometimes allowable ones. In a case of sarcoma of the wrist, calling for amputation anyway, I hoped first to find out if selective staining of malignant cell nuclei would influence the morbid process. A tourniquet was applied to the arm. Methyl blue solution, injected into an artery from a douche bag, made the round of the circulation below the tourniquet and escaped from an opened vein. When the tourniquet was removed, blood would no longer make the round of the circulation, probably because of exudate in the capillaries which might not have occurred if Ringer's solution had been used instead of sterilized water as menstruum for the methyl blue. The latter in solution had been going the rounds of the circulation at the wrist, however.

In a case of hydrocephalus I connected a lateral ventricle of the brain with the temporal vein on that side by means of a silver tube, only to find that hydrostatic balance was such that the fluid from the ventricle did not distend the vein and enter the circulation.

I mention surgical excursions such as these in the hope that their scope will be enlarged by surgeons of today who have more persistence than I, more resource, and a more modern training.

CHAPTER XIV

GLAND GRAFTING

TISSUE of any sort taken from one individual and planted in another is physiologically a stranger; and the recipient gradually disposes of it by absorption. This process proceeds slowly or rapidly according to the natural degree of affinity between the two individuals.

The disappearance of a graft taken from some other individual or some other animal belongs to the subject of immunity. Bordet showed that when red blood corpuscles of one animal are injected into another animal, the latter manufactures something that dissolves the foreign corpuscles. The whole subject of tissue grafting is, therefore, based upon this original observation of Bordet's.

A graft may remain for a very long time if donor and recipient happen to be chemically harmonious. Many people are so naturally antagonistic to each other that even their tissues are chemically or physiologically antagonistic. Donors and recipients of blood have to be classified in order to avoid reactions to the wrong type of blood. When experimenting with grafting of ovaries in rabbits I went to a good deal of trouble in an effort to make one set of rabbits immune to blood serum of another set of rabbits, only to find that the rapidity of absorption of ovarian grafts was hastened as a result. (Physiologists later told me that I should have known that in advance.)

Grafting of tissues from other animals to man presumably offers greater obstacles to success because of wider physiological differences, but experiments now being conducted with anthropoid apes may give some surprises. Research work of any sort whatsoever is so full of surprises that I highly recommend it for blasé young people who have seen everything.

We are usually disappointed in heteroplastic grafting —tissue transplanted from one individual to another individual. In homoplastic grafting—that is, when transplanting one part of an individual to some other part of the same individual, we are often successful. These grafts of skin, bone, tendon, fat and nerve now belong to the ordinary day's work in our hospitals—one of the very great changes of the twentieth century. Even though grafts from one individual to another undergo absorption more or less rapidly, they may serve an extremely useful purpose by guiding the formation of new tissue which gradually replaces the graft tissue. The filling of gaps in bone where decalcified grafts from other animals have been inserted is particularly striking.

A still more rapid replacement of guiding material takes place when blood clot is employed for filling gaps in various kinds of tissue. When we began to employ the permanent dressing on wounds at Bellevue Hospital in 1883 I observed that in the absence of infection blood clot remained intact. It seemed to conduct repair speedily, becoming replaced by cells of the kind of tissue with which it was in most intimate contact. I then began experimenting by purposely filling cavities with blood clot in order to avert the slower filling that nature conducted with connective tissue. If carbolic acid solution was employed as the antiseptic agent a large clot would become

crumbly and blackish, leading to failure. If gauze touched the clot it would draw out too much serum and leave the wound so dry that repair could not proceed in that way. Gutta-percha tissue retained so much moisture when used as protective material that the clot became macerated. Success finally crowned my efforts when semi-pervious Lister oiled-silk made the protective covering and sterile Ringer's solution took the place of antiseptics for final cleansing of a wound.

In 1884 Dr. Schede allowed me to give a demonstration of this method in a couple of open-incision club-foot operations at his clinic in Hamburg. Permission was given with misgivings on the part of Schede, who said that the method would be highly dangerous if infection were to occur. He became so delighted with the result in these two club-foot cases that he immediately proceeded to carry out my method in a number of cases of other kinds, and published a report upon this plan of procedure in the *Deutsche Medizinische Wochenschrift* for June, 1886. Wound repair through the agency of the moist blood clot came to be adopted the world over as the "Schede method."

A blood clot employed in this way becomes technically a graft and the processes of repair which its presence engenders are similar to those going with grafts of other kinds. The blood clot simply gives us a speedy demonstration of what occurs more slowly with grafts of other kinds. For example the method of introducing bone grafts that has been developed by Dr. F. H. Albee to heights of technical artistry allows bone plates and pegs to remain practically unchanged in structure during the lifetime of the individual provided that they were taken from some other part of the same individual. On the other hand

bone plates and pegs from another individual or even when made of hardest ivory undergo absorption when ivory is "foreign" to the tissues of the recipient.

The subject of gland grafting engaged my interest in the Nineties, at the very outset of this kind of work. Chief popular interest in the subject seems to have centered in glands of the sexual apparatus, but in my experience to date the only gland grafting that is regularly practical is ovarian grafting, to avert precipitate menopause. Cephalos in Plato's *Republic* expresses my feelings about making old folks new—"Time to have peace."

There is not so much grafting material available for men as there is for women. At one period particularly, the Hegar operation—removal of ovaries to halt the development of uterine myoma or fibroma—offered plenty of female graft material, but that operation has gone out of fashion.

Sometimes in men it is desirable to remove an undescended testis in bad position, or a testis which interferes with repair of hernia in a patient with very defective abdominal wall. This material may be grafted into someone needing it. In one case, trimmings removed in doing a radical hydrocele operation resulted in an accident. A danger of that type of operation appeared when the sutured tunic gave way and allowed gland tissue to escape.

In any large city, grafting material in large quantity and of almost any kind may be had almost daily if the coroner's physician or medical examiner's physician is asked to secure it promptly in cases of sudden death. He should have ready a large-mouthed bottle or jar of sterilized Ringer's solution at body temperature.

In such cases, however, we must forego the Wassermann test. My personal procedure has been to obtain from the

prospective recipient of the graft a written expression of willingness to take the risk. In tropical countries, one would also have to keep in mind a number of kinds of microscopic entozoa which might be transferred with a graft.

Prospective donors and recipients of grafts exhibit extremely interesting differences in attitude toward the subject. Some who are asked to become donors resent the suggestion with a good deal of feeling and sometimes with exclamations. Others are intensely eager to render help to anybody who might need a piece of themselves. When a request for donation of blood for transfusion comes up in an emergency, men seem to be much more responsive than women—they may even vie with each other for opportunity to make the sacrifice. Women, on the other hand, are much more ready than are men to sacrifice a solid organ (blood being a fluid organ). Fifty years ago any abdominal operation was looked upon with dread amounting to terror, but today women have so little fear of an operation involving the ovaries that one of them will sometimes suggest the self-sacrifice of offering both ovaries to some other woman, even a stranger, who may need them. This kind of procedure, however, would not be legally permissible even when coming from a woman who has children enough.

One of my women patients who was something of a wag and who was about to receive an ovarian graft from a Hegar operation wanted to know if the donor was a Methodist or an Episcopalian!

Doctors sometimes get into trouble from forgetting the potency of a tiny graft that is unintentionally left behind when the pedicle of an ovary is ligated, leaving behind a few ovarian cells. Nature is so insistent upon retaining

the mechanism of reproduction that she promptly sets this tiny graft into activity; if there are not cells enough to please her, she may hunt up any latent cell "rests" in the broad ligament and jump them up into important position. My very first abdominal operation turned out in that sort of way. It was when I was a student in comparative anatomy at Cornell about 1878. Harry Clark, a restaurant keeper, owned an Irish water spaniel that the family loved deeply. Unfortunately she was in the habit of having an abnormal number of puppies in each litter, ten or twelve of them; the delivery always carried her near to death from exhaustion. I was asked to remove her ovaries. At the next litter she had fourteen puppies, the largest litter of all. Dr. James Law, the veterinarian, years later performed a post-mortem examination and found that a number of discrete ovarian cell "rests" in the broad ligaments had apparently gone into action in a way to supplement lost ovaries. It was this sort of thing, which sometimes brought a happy ending years ago to many a wholesale slaughter of human ovaries by the dreadful Battey operation.

My presentation of the idea of ovarian grafting, description of technic, and report upon cases was published in 1895. Chrobak and Knauer of Vienna followed in 1896 and since that time a voluminous literature has appeared. My report of the birth of a living child after heteroplastic grafting was published in the *New York Medical Record* for May, 1906.

When I published the report of this case of ovarian grafting for a woman who subsequently bore two living children, the lawyers held up their hands in protest and said that it would mix up all their laws on entailment of property because no one could say who was which parent

of a child. Perhaps there were three parents for one small innocent! Castle came to the rescue of that situation in a way. He grafted ovary from a black guinea pig into a white guinea pig and obtained black progeny from a white father and mother. As a matter of fact we had precedent enough in horticulture, knowing that a graft retains its identity until it is absorbed. The Baldwin apple, for example, grafted upon a dozen other varieties of apple tree gives us Baldwin apples *only*.

The piece of ovary in my only case which gave progeny was obtained from a "young middle-aged woman." Dr. H. J. Boldt, doing a Hegar fibroid and retroversion operation, had things so arranged that as soon as his work had been completed a segment from one of the ovaries was placed in a dish of warm saline solution and kept ready until my patient was given the graft half an hour later.

After discussion of these ovarian grafting papers in medical journals (thank the Lord, lay journals were not interested) I was offered extremely large sums of money contingent upon obtaining like results in other cases. I wished that surgeons everywhere could have seen some of the pitiful letters received from women who had lost their ovaries; there would have been very prompt closure of ranks among those who were not already conservative on the subject.

Most of the women who had lost their ovaries had lost oviducts also. In one case I grafted the fimbriated end including ampulla of an oviduct into the stump of a lost one. A bit of ovary was grafted in at the same time. There was no pregnancy during the time when these heteroplastic grafts might possibly have been functioning.

In another case I removed the patient's own appendix

—cut off the distal half and grafted it into the cornu of the uterus on one side. This graft was without fimbriae but the possibility of utility was based upon the fact that the open end of a stump of oviduct has sometimes though rarely conducted an ovum into the uterus with resulting pregnancy. In this particular case asepsis could not be counted upon after washing of the segment of appendix in saline solution; and I had to knock down a little peritonitis which may have led to a sealing-in of the graft.

I did not accept any of the cases on contingent fee. What may be holy for the lawyer is unholy for the doctor because a contingent fee presupposes work for the money regardless of the rendering of humane service. For the patients in question I sometimes had a paper made out stating that an ordinary charge of two hundred and fifty dollars would be made as charge for an ordinary laparotomy. The grafting operation would be wholly experimental and might carry some elements of danger. A few patients signed that paper, three or four. I tried to discourage them; but they were willing to take almost any risk in order to have children. Sometimes entailment of property was at stake and a really interesting question in law would have arisen—and likely enough will arise some day when somebody else gets a living child from an ovarian graft and property is involved.

A young man had lost both testicles when a child as a result of mumps. He was impotent. I placed a portion of testicle in one side of the scrotum. It gradually became absorbed but before disappearing it had excited into growth some latent cells at the site of the lost testicle on that side. At the time when I showed the patient before the Surgical Section of the Academy of Medicine in New York, his new testicle was about half normal size

with well-defined epididymis and spermatic cord. He was enabled to marry and to perform normal function but had no children at last accounts. The same kind of result in function followed insertion of a testicle graft in a young man who was impotent with undescended testicles too small and rudimentary to be found at time of operative search for them. I assume that they were stimulated into function because the grafts had been absorbed, while function of internal secretion of testes continued.

The situation was quite different from that in which I inserted a large graft for a man whose testicles had been removed following an accident. He secured more than a year of temporary internal secretion function of nearly normal character which then faded out in his case. Extracts of letters from this latter patient between March 16 and July 21, 1914, read as follows:

"I am delighted with the result and my wife is so happy she cries for joy.

"I have gained 14 pounds in weight and my physical condition is nearly perfect—in fact, I throw a piece of iron weighing 100 pounds for exercise. Life is one blissful day. Sexual congress is quite normal indeed. You have done a great thing and I am everlastingly indebted to you."

One may easily imagine what the use of such a letter might be when circulated by any unprincipled gland grafter who would fail to make a follow-up with letters coming to him a year later stating that the good effect of the graft had all been lost. This patient became intensely nervous and dejected and had almost uncontrollable desire to commit suicide because of the later disappointment.

My conclusions to date seem to be different from those

of authorities who feel that the effect from a gland graft amounts only to a temporary dose of endocrine substance —beneficial for averting a precipitate menopause, for example—but endocrine treatment well applied might even control that. The data from two of my experiments indicate that we have at least a look into a new field. (1) The case in which mumps injury in childhood left tiny vestiges of testicle and resulting impotence; a small graft of testicle on the right side caused development of vestigial remains to about the size of half a testicle—and allowed the young man to feel that he could marry, as he did. Theoretically, vestigial remains of testicle upon the left side should have made similar response to the right side graft but they did not do so.

(2) The introduction of a small graft in a case of undeveloped undescended testicles apparently excited the development of those rudimentary structures. This conclusion is deduced from the fact that after a graft of testicle had become absorbed the patient who had been impotent was enabled to marry and to do his part so far as the sexual act was concerned. There were no living spermatozoa to be found in one specimen of seminal fluid that was obtained and examined.

I did two ovarian grafts which brought about normal menstruation, absent because of defective glands. My feeling now is that the ovarian grafts simply stimulated latent function of inactive ovaries into normal action very much as latent testicle function was aroused by grafts. I am aware that the ovarian part in menstruation forms only one part of a complex hormone problem.

The Freudians have claimed sex perversion for their part of medicine, but if the defect is anatomical in origin we must investigate the extent to which it may be influ-

enced. In some of these cases a thyroid defect or a pituitary defect is clearly demonstrable.

I had a Guernsey cow that changed to a bull in voice and manner. There was the same proudly elevated head, rolling eyes, pawing of the ground, and threatening attiture toward strangers and later toward my farmer, who became afraid of her. The growling, roaring, and bellowing were precisely those of a bull. She was sold to a butcher when I was away or I would have had the ovaries examined—perhaps the seat of local tuberculosis.

Sometimes a change in sex attitude takes place among mammals under conditions of cultivation. Among domesticated fowls—including the pheasant—hens not only take on manners of the male but there is corresponding change in plumage. Post-mortem examination in these striking examples of abnormal behavior has shown actual degenerative change of structure of the organs caused by tuberculosis or by some other demonstrable factor.

There was some difficulty in finding a patient with sexual perversion who would coöperate in an experiment aimed at securing effects from gland grafting. I finally found a young married man who was willing and who appeared to be of normal physical structure sexually. There was a long interval of time before I had opportunity to secure a small graft of testicle for him. The immediate effects were precisely what I had hoped for in change from perversion to normal sex attitude, but when there was reversion to the abnormal a few months later the despair of the young man was pitiable.

Psychiatrists will at once ask if the temporary change to normal was not psychic in its nature, and dependent upon strong wish combined with tangible basis for hope. Freudians have reported beneficial effects from meta-

physical treatment of sexual perversion. The possibility of even temporary relief from sexual perversion as a result of gland grafting has not been wholly dismissed.

The popular idea of homosexuality makes it something that is voluntarily exploited. Doctors, on the other hand, well know that some of these individuals, distressed by consciousness of personal defect, make desperate efforts to secure relief. The loneliness to which they may be subjected calls for intelligent pity.

I was one of the founders of The American Society of Endocrinologists and the temptation to give up everything else in order to go into that new field of exploration was so overpowering that I had actually to resign from the Society and keep away from its meetings. A very little experience with gland grafting in various experimental fields gives an understanding of the tremendous malign power that is in the hands of fakers who advertise the temporary effect of such grafting and who are supported by the genuine glowing testimony of temporarily overjoyed patients. That part of the subject which is open to internal therapy in the course of experimental endocrinology carries no such misery.

Almost every subject that I have ever touched—in or out of professional work—has instantly tried to drag me from my seat in surgery. Endocrinology and its phase of gland grafting certainly give insight into traits of character that are not explained by psychiatry—or by psychoanalysis.

Experimental work with gland transplantation in the right hands opens up a field of wholly unknown dimensions. My old friend the late Dr. G. F. Lydston made some fun of my experiments but after thinking the matter over, he tried some himself, and reported in the *New*

York Medical Journal for November 14, 1914, the cure of a plantar eczema and of a psoriasis after genital gland transplantation. I do not know how much attention dermatologists gave to this report; but its significance runs deeply into some of their difficult problems.

I have known two men who were able and willing to have paid one hundred thousand dollars for the cure of their psoriasis. Incidentally one of my friends, who had suffered for twenty years from this trouble found that he was sensitized to wheat and he became permanently well immediately after dropping wheat from his diet. Why do we toss aside the testimony offered by such occasional cures of a chronic disease? Is it because they are so small in number? That puts us learned men in a class with the girl who asked to be excused for having a baby because it was such a little one. We are a cheerful lot of futile fatalists in the presence of many a curable disease which simply requires application of effort on our part. We doctors too often give scant attention to the meaning involved in the occasional definite cure of some chronic disease and allow people who have respect for us to go right on suffering under treatment by futile textbook palliatives. The cure of a case of psoriasis by gland grafting, or by withdrawal of a sensitizing agent, or by any one of a number of reported influences means that the subject of medicine has merely been scratched on the top as yet.

In a case of Addison's disease presumably caused by tuberculosis of the suprarenal glands I grafted a fresh suprarenal gland (obtained from the coroner's physician, Dr. Schultze) in a fold of omentum. The patient was too far advanced to show effects of the operation but on post-mortem examination it was found that the graft was

firmly united among omental adhesions. The omentum may be used for many kinds of gland grafting because of the readiness with which it quickly encapsulates a foreign body.

The stimulation of latent cells into activity as a result of heteroplastic gland grafting which I appear to have observed opens up a field for speculation so large that I do not dare even to suggest things that come to mind in this connection. We seem to have a vista which includes not only the matter of gland grafting but also the question of what endocrine treatment may do for latent cells or cell rests when it is aimed at them—and this in turn leads to speculation including tumor formation.

The latest work in this field is *The Human Personality* by Dr. Charles R. Stockard. He describes influences exerted by inherited gland structure and other inherited structural characters upon personality of the individual. Jennings' *Biological Basis of Human Nature* belongs on the same bookshelf.

It is very comforting to be able to say if somebody disagrees with you that there must be something the matter with his glands.

CHAPTER XV

THE GENERAL PRACTITIONER

I SPECIALIZED. But if I were today at the threshold of another fifty years, the joy of exercising my skill and adapting myself to all of the kinds of minds and of illnesses in general practice would outweigh the satisfaction to be found in a specialty. There are still plenty of physicians to whom every patient is a charge requiring protection. The joy and satisfaction going with such responsibility cannot be rivaled by mere accomplishment in special attainment.

I wrote this recently to a family physician in Texas, in connection with managing a case he had sent me. He replied:

"It sounds rather singular for a surgeon like you to state that if he could live life over again he would be a general practitioner; yet, when I find myself so fascinated with internal medicine—eternally infatuated with it—I can understand how you feel." The case was that of an extremely brilliant and vivacious but puny girl who had required an appendix operation. In the course of the operation I examined further and incidentally discovered why she was delayed in development. Upon her return home endocrine treatment was begun at once as a result of my report upon findings. The doctor now says in his letter, "You will be glad to hear that our little patient is

turning rapidly and splendidly into womanhood. It didn't require very much treatment to set her right and her development has been remarkable."

In my student work with the Whittemores and with patients left in my charge by doctors on vacation I learned to know what it meant for people to develop the sort of love and loyalty for the family doctor that does not go to specialists. Patients were so impatient for the return of their own doctors that I would have felt hurt except for the lesson that was being learned.

At about the beginning of the twentieth century, specialism became the order of the day. What happened to the art of medical practice? With increase in specialism in any profession there is corresponding loss in the spirit of guardianship and a tendency to do only what is to be paid for. We soon learned that specialists on the whole were not to be trusted with final decisions. The general practitioner is the only one who can manage the whole case. The whole case is precisely what you and I take to him when you and I are ill.

Group clinics were then organized as an attempt to correct the weak points in specialism. In these clinics specialists study the aspects of a case and render a combined report on it. This gives rise to a paraphrase of the epigram about tailors, i.e., nine specialists to make one doctor. It is not far wrong.

The best medical diagnostician is not necessarily the best physician to care for patients in detail. Different types of mind are required for the two functions. The scientific psychologist is not the one to control a patient's mind in time of hallucinations with typhoid fever; for example, he would be especially unfitted for the work, lost, in fact. It is the intuitive sense belonging to the good

family physician that correlates a patient's needs—something far above laboratories. The family doctor's work is something akin to the spiritual work of the pastor.

I believe the general practitioner—guide, counselor, and friend of the family is to return in full force and for several reasons. In the first place he is needed for sitting upon the supreme court bench of our profession while the specialists are presenting their briefs to him. The general practitioner occupying judicial position will carry greater responsibility than ever before. And he will in future be far less ready to believe cheerfully in his own encouraging off-hand opinion that he commonly has to give to patients. That has constituted his weakness in the past. In the second place, as Osler well said—"There are no specifics in medicine excepting as they are applied by the doctor's art," and this applies to a specific report made by any specialist quite as well as it applies to a drug.

Robert Louis Stevenson knew the general practitioner: "Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion tested by a hundred secrets, tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is that he brings art and cheer into the sick room, and often enough, though not as often as he wishes, brings healing."

Dissatisfaction with the practice of medicine is often due to superficial view going with superficial attainment and outlook. People deeply appreciate thorough-going interest at times when they are alarmed by illness—and every one is alarmed when he is ill.

No one can be a one-hundred-per-cent doctor until he has himself had some serious illness or surgical operation.

This is not a prescribed feature of the curriculum at Medical College—but was one of the things that I learned after graduation—more important than any single thing acquired from teachers. Instructions tell us nothing of the feel of fresh bed linen without wrinkles after a sleepless night; of bed utensils thoughtfully warmed by the nurse, or the comfortable feeling of security in the mere presence of a nurse in the room. They tell us nothing of the effect of the cheery doctor's visit—the best moment in the whole day or night, when our response is so bracing that the doctor himself is always deceived about our real condition. Neither do our teachers tell us anything of the soft and gentle touch of a loving sympathetic hand or of visits from friends who we supposed had forgotten us entirely. It is well to be ill—for once, anyway.

A doctor who felt very self-reliant once asked me if I thought he ought to assume the rôle of general distributor of cases that came to him, sending each one to the best authority instead of keeping it for himself. The reply was that I myself acted in that sort of capacity.

Choice of a consultant implies a study of the subject of consultants on the part of the general practitioner, and the application by him of expert special knowledge and thought. A physician must know specialists personally in order to protect his patients' interests. He must know their individual peculiarities. If the consultant for any reason proves to be unsatisfactory the weight of criticism is at once saddled upon the shoulders of the doctor who chose him.

A Connecticut doctor called me to a case of acute pyosalpinx in a young married woman. Infection had already progressed to the point of pelvic abscess formation. The best of surgeons had been having such sad results

from devastating pelvic surgery, which removed ovaries, tubes and sometimes the infected uterus itself, that the pendulum had swung far over to the "conservative" side —avoidance of surgery.

Patients going without operation for pyosalpinx commonly make some kind of tedious recovery from the acute features but they are too often left semi-invalids with peritoneal adhesions, usually barren and with the menace of extra-uterine pregnancy if conception does happen to occur. For this particular patient, I averted the tedious convalescence and uncertain results of "watchful waiting" which had become established procedure with gynecologists. I quickly opened the abdomen, evacuated the abscesses, split the tubes wide open in their entirety, fastened them to the anterior abdominal wall and inserted a small wick drain, leaving instructions for special vaginal treatment and the employment of vaccines. The patient's father asked what my charge would be. My reply was that it would be twenty-five hundred dollars. One thousand for the first operation and fifteen hundred for the second operation that would consist of freeing the tubes and attending to final details which might perhaps require some months of observation. The young lady made fine response to the first operation as these patients usually do and the bill for the one thousand dollars was paid at once.

At the end of about three months when the second operation would ordinarily have been done a letter was sent conveying that message. Whenever the case had come into mind in the interval I had had a feeling of deep satisfaction. Here was a young wife already rescued promptly from a condition of acute distress and danger and to be saved from barrenness and adhesion invalidism—one of

the triumphs that justify the existence of surgeons. There was no response to my letter. It had perhaps gone wrong in the mail. A second letter was sent. This time there came angry response from the father. He had "consulted very high authority" and had been informed that my operation was all wrong and should never have been done. "It was only by some unusual fortune that her life had been spared after that sort of improper procedure on my part." I saw at once that no second operation would be done and that the artistic part of the work would remain unfinished. A sculptor had nearly completed a masterpiece of his creation when another sculptor came along and smashed it all up.

Where did the family physician stand in a situation of this kind? He had been responsible for calling me in the first place, and was subjected to irate criticism in a summer colony of very influential people where medical and surgical events are always freely discussed. The responsibility for the outcome of work done by his consultant rested upon his shoulders.

The responsibility of merely taking charge of a case after consultation or operation may be very great. If a surgeon operates for gastric ulcer; for example, in a case in which many complications have already appeared he is nothing more than a therapeutic resource of temporary character. Real work for bringing back health may have only just begun when the patient has been discharged from a hospital and the general practitioner plays much the more important rôle in the case.

The knowledge, skill, and responsibility required for keeping a hand on the wheel for a case of ordinary arterio-sclerosis, for example, with its complications year after year may bring an extra gray hair or two for a fam-

ily doctor. Charge by the visit would be wholly out of keeping with what is really required in such a case. Many a one of this sort with complications would justify a charge of several thousand dollars per year if the patient could afford it.

Dyspepsia is a symptom covering pretty much all of medicine. When a patient has stomach trouble it is time for the doctor to begin to find out what really does ail the patient. This means application of such elaborate medical knowledge that the idea of charging by the visit and for prescriptions belongs with the saddle-bag stage of medicine. We may fairly say that "when a patient has stomach trouble it is not stomach trouble that he has." Ophthalmologist, rhinologist, dentist, neurologist, orthopedist—these and more are the specialists who may have to be called in consultation for a case in which the patient has made his own diagnosis of "stomach trouble." After the experts are gone, their bills paid and the patient no better, we may find at last that a tiny ventral hernia the size of a hazelnut which was overlooked was the cause of stomach disturbance in that patient.

The same thing is true of functional heart disease. When a patient has that condition it is also time to find out what really is the matter.

The idea that a general practitioner must necessarily have a smaller income than the specialist is very wrong. One of my former assistants who went to his home town to engage in practice, was particularly well equipped for medical diagnosis. It so happened that some time later I had occasion to refer an asthma case to him giving the patient a full account of the doctor's capabilities. When this patient again saw me on a visit to New York he expressed disappointment and said that the doctor in ques-

tion was no better than anyone else and had merely given him a prescription on one visit and said to call again with his next attack. I promptly called the doctor to account and told him that he was injuring me as well as himself by falling into an old rut. Here was a patient who was eager for opportunity to expend many hundreds of dollars if necessary for a thorough study of his case. He had been placed in contact with a doctor who was not only fully competent to make a study of the case but who needed the hundreds of dollars. People are eagerly looking for general practitioners to whom they may pay as much as they pay the specialist.

Another change necessary for the general practitioner of tomorrow will be a sharing of the work with another general practitioner in the same office. One will then be free for travel or for special study or for any vocation to his taste while his associate looks after the work of both. Chauncey Depew said that a man could do a year's work in ten months but not in twelve. Because of individualism the family physician in times past has had a very strong tendency to "go it alone" and he knew just exactly why. Consequently he became so overburdened with personally conducted responsibilities in practice that no opening for recreation was left. Furthermore, anything like a vacation for him used to be looked upon as something of a frivolity by many good members of his clientele who took no vacations themselves. They were like the old cook of Charles Darwin who had small opinion of her master, because "he would sit on a bench in the garden doing nothing but turning a green leaf over and over in his hands and staring at it just like any foolish boy." Tremendous thoughts that surged back and forth through his brain in the presence of anything so wonderful as a leaf

were out of her experience. Thoughts which go swirling through the mind of almost any educated man who gazes at a leaf may take him entirely away from the humdrum of daily affairs. The general practitioner must be given time to look at a leaf. The gripping first duties that keep his wings closed may be shifted to other shoulders and he may then have his chance to soar over fields of his choice when the time comes for him to take an office associate as the specialists do.

It is only the exceptional physician nowadays who is "right on the job all the time" as were the old-time practitioners. On the other hand, there is actually less need for it. Emergencies are largely anticipated and the patient sent to a hospital. Many of our trained nurses under instruction are competent to take charge of most of the ordinary detail that formerly called for the presence of a doctor in person. Some pretty good practitioners have to watch their step before giving arbitrary instructions to modern experienced nurses, many of whom are college graduates with training in science.

Even at the hospital "an emergency case for surgery" may not really be one for surgery—but rather one for judgment that is "on the job" all the time. Let us take for example a simple rupture of the normal spleen occurring in an automobile accident. The hemorrhage for a short time is alarming but like that from parenchyma of the liver or kidney it may quite suddenly come to a stop so far as dangerous volume is concerned. This rapid cessation of flow of blood leaves a large mass of clot and serum in the vicinity. I feel quite certain that many such ruptures are overlooked and simply pass as "indefinite internal injury, to be kept under observation." When the diagnosis of rupture of the normal spleen has been made, how-

ever, almost any surgical enthusiast will wish to do a brilliant operation. The surgeon who is more interested in judgment than in operating may be very conservative in the presence of such a case. He knows that blood in the abdominal cavity is still in circulation, in a way, because the great lymph sac of the peritoneum is returning serous elements very speedily to the general circulation. The surgeon is familiar with the same phenomenon in some of his cases of tubal rupture in extra-uterine pregnancy. He has often been surprised at the amount of blood found at time of operation in tubal rupture cases in which the patient has shown no signs of really grave hemorrhage. In the absence of infection a pretty large collection of blood in the peritoneal cavity may undergo absorption with such degree of safety that any question of operation may be left to decision by the family physician, rather than to an expert who would do highly artistic surgery, and who might be quite impatient at interference by an old fogy. I heard of an instance in which all arrangements had been made for operation upon a case of simple ovarian cyst in a young woman in whom a similar cyst had previously ruptured and had discharged its watery contents in a harmless way through the Fallopian tubes. Dr. T. Gaillard Thomas, called in consultation at the request of the family, decided against operation, apropos of which the impatient remark was made that "Thomas was losing his nerve in his old age."

Some time ago I was called in consultation with an up-to-date gynecologist friend in order to settle the question of pregnancy or abdominal tumor for a puzzled doctor who could not be sure about a diagnosis. I, being the elder of the consultants, was asked to make the first examination. It was a bit too early to hear the ticking of a little

watch under the stethoscope; but I made continuous pressure with my hand on the abdomen over the uterus in order to cause discomfort for an innocent tenant deserving of no such treatment at that time in life. In a minute or two there came a tiny kick from within, and I announced that no further examination was necessary in order to establish the diagnosis. My friend, the expert, seemed disappointed and asked if I felt more than one kick to which I replied by asking how many he desired. Even at that the specialist felt that in order to justify his position a number of other tests really ought to be made.

One of my relatives was accustomed to come to New York for a rest; a very busy man who could find little time for reading excepting when on these vacations. He enjoyed literature greatly but after a few days of reading always began to suffer from sciatica. He was sent to various neurologists without getting relief. The question of eye strain came up in connection with a passing headache. I sent him to an ophthalmologist who soon corrected the eye strain. He was not only relieved from headache, but also from the old recurrent sciatica, and incidentally from car sickness from which he had always suffered. I assume that the sciatica was in no way a direct or even a "referred condition" of nerve response to eye strain. It had probably caused gastric disturbance with faulty digestion of food. The sciatica had doubtless been toxic in origin, secondary to indigestion. Yet it would not have occurred excepting for the eye strain—a case of sciatica cured "by putting on glasses."

Dr. C. G. Stockton of Buffalo as general practitioner once sent me a case of chorioiditis in a clergyman who had become too blind to continue his work in the Church. Dr. Stockton felt that the eye condition might be toxic

and secondary to indigestion caused by chronic appendicitis. I removed an irritating appendix undergoing fibroid involution. Indigestion was brought under control; the chorioiditis was cured; and the good clergyman went back to his pulpit.

A patient with a cyclical mania sent to a State Hospital might there be exposed to the danger of a specialist's application of some cut-and-dried institutional formula. The same patient in the hands of an endocrinologist might be claimed for that specialty and perhaps properly.

The same patient in the hands of a psychoanalyst might be subjected to a very trying search for a sexual suppression and it would doubtless be found because that sort of suppression is pretty general even among decorous wholesome folk who eat three good meals per day.

The same patient in the hands of a surgeon might be found to have had a fall upon the head years previously with a resulting bump that caused meningeal adhesions. These relieved by operation may end the whole psychosis in that sort of a case. This is not a fanciful picture. Like other surgeons I have cured many a psychosis or neurosis by separation of brain adhesions. The general practitioner should guide the whole case from the first and not allow the patient to go to any sort of specialist until he himself has made a thorough study of the case. Such an idea presupposes an unprejudiced general practitioner who is competent to make thorough study of a case. Failure at this end of the system, however, tosses our row of blocks all about in confusion, and I see it happen almost daily.

A Canadian clergyman with depression of the frontal bone resulting from a horse kick developed epilepsy with attacks of grand mal which obliged him to give up the pulpit despite medical treatment. I elevated the depressed

bone and separated dural adhesions with the result that his grand mal was reduced to trifling attacks of petit mal and he resumed his clerical work. The benefit appeared to be permanent at last accounts some years later.

Another case of aggravated grand mal which was reduced to petit mal and with resumption of occupation by the patient after futile medical treatment was that of a millhand who had been thrown against a buzz-saw some years previously and received a deep cut through the frontal bone to the brain. A remarkable feature of that case at operation was the removal of a square inch or so of encysted old black felt hat.

Tell a specialist in nervous diseases that sciatica or dipsomania might be cured by correcting eye strain and he may pooh-pooh the idea. Tell an ophthalmologist the same thing, however, and he will not only confirm the statement but will quote other things quite as interesting as a result of merely correcting an error of refraction. They do not know of each other's work. A specialist in stomach trouble may keep on for years giving eggs in the diet for a case of ulcer of the duodenum when the general practitioner might discover that the patient in this particular case was sensitized to the lipoid of egg, the basic cause for ulcer in that patient in the first place.

It is the general practitioner who is to attend to all these things after making up a brief from the reports of various specialists. The patient who makes his own diagnosis of stomach trouble and who goes to a specialist on his own account may pay dearly for such indiscretion. Specialists of any one kind hold mutual admiration meetings and arrive at important conclusions—such conclusions being wholly unknown to specialists of other kinds.

The need for general information in connection with

any specialty is well exemplified by some of the eye-specialists. They commonly use water for making up their solutions. The physiologist knows that in the laboratory common tap-water is corrosive. It will dull the tendons of a rat's tail so quickly that they cannot be studied readily. Corrosion of tissues is caused by abstraction of salts from those tissues in the course of establishment of osmotic balance. The same rat's tail immersed in physiological saline solution or in Ringer's solution remains perfectly bright. The physiologist then would not allow the eye-specialist to continue the use of ordinary water (distilled water worse yet) in making up solutions which are to be placed in the eye. Water is corrosive for the endothelial covering of the peritoneum because of the same exosmosis of cell salts, but has been used many times without a physiological salt content. Peritoneal adhesions naturally result and in cases of re-operation we find the omentum adherent to the anterior abdominal wall so frequently from this and other causes that it seems almost like a natural thing—yet really avoidable for the most part.

Who drove the general practitioner into secondary rôle temporarily, and actually out of listing in the published list of departments of the American Medical Association? The public—the people who wanted him most were the ones who did it! They will try to drive him away again, when he returns, by again capitalizing his generosity. How often has the family doctor heard people say when settling up an account:—"There, now my *last* bill has been paid!" The committee on Medical Education of the American Medical Association estimates that a good general practitioner is capable of handling from 80 to 90 per cent of illnesses for which patients seek medical ad-

vice. Yet general practitioners are not listed as such by the A. M. A.!

The U. S. Bureau of Education has expressed an opinion to the effect that specialization is becoming segregated into its legitimate compartments. The Bureau foresees that the physician who has prepared himself for managing the majority of ailments that come to him will prove to be of greater service to the public than the doctor who limits practice to a specialty.

We have experts enough in every profession. The next thing in order for tomorrow is to educate the people in making use of the experts they already have.

CHAPTER XVI

OSTEOPATHY

OSTEOPATHY and chiropractic have made a more or less deep impression in this country. Their manipulations, relating chiefly to alleged adjustment of subluxated bones of the spine, are sometimes quite effective when applied in the right way by the right manipulator. But harmful effects of wrong manipulation by ignorant practitioners of this so-called "spinal adjustment" have been so great that osteopaths are now subjecting their students to a long course of study before granting them a license to practice. As a consequence, osteopathy has now moved up to higher levels, leaving its crude destructive features to chiropractic.

In the early days of osteopathy, a New York practitioner in East Thirty-Fourth Street became a leader in the field. One of my homeopathic friends in the same street with a very large practice said that many of his patients were going to him and he knew of bad results of treatment. I asked him to make a record of such cases because the notes would be valuable for presentation before a legislative committee at Albany. He obtained several reports from relatives or friends of deceased patients during the next few months. A young man with appendicitis was told that osteopathy would empty the appendix and that spinal adjustment would prevent further attacks.

Forcible attempts at emptying the appendix excited a general peritonitis that was rapidly fatal. A lad with hip-joint disease was informed that osteopathy was just the thing for joints. Active manipulation excited acute miliary tuberculosis causing death of that patient.

A woman with a small tumor of the breast was told that the lump could be massaged out, and that spinal treatment would prevent its recurrence. Massage caused rapid development of cancer; and the woman died with general carcinomatosis.

A man whose badly balanced heart action had been carefully kept under control for years by a physician was told that osteopathy would take spinal pressure from nerves that were making the heart go wrong. Auricular fibrillation developed rapidly and the man died with heart block.

A young man whose epilepsy had been kept under such control that only two or three attacks occurred in the course of a year did not wish to have any more attacks at all. He was informed that osteopathic treatment was the thing. Under this treatment the attacks increased violently and the patient died in a convulsion.

A man with paralysis agitans had been kept in a fair degree of comfort. He was told that spinal adjustment would stop the trouble, but under osteopathic treatment the man quickly succumbed—dying in agony.

These six deaths occurred in a short time, in the work of just one osteopath among patients of just one general practitioner, in cases in which the latter was able to obtain the patient's history. We shall never know about deaths and injuries occurring at the hands of hundreds of other osteopaths throughout the country at that particular time in the early history of spinal manipulation. Later on,

I saw many deaths following manipulative treatment. This osteopath was by no means a quack. He was a physically powerful man whose previous occupation, I believe, had been that of driver of an express wagon. He took up osteopathy and after a few weeks of study was honestly convinced that he could do wonderful things. We were able to have a conversation without much heat on one occasion when we met casually in a hotel corridor and sat down to talk things over. This was after I had accused him at Albany of killing six people. He began the conversation.

"Is it not a fact that regular doctors make mistakes and lose patients as a result of wrong treatments?"

"Yes, those of us who are engaged in consultation work see many cases go to the bad because of wrong or incomplete diagnosis and wrong or incomplete treatment. I have been guilty of that myself."

"Why then don't you allow us to have a license so that we can do our stuff?"

"It is a comparative matter—the better the medical education the fewer the mistakes, and you know that many of your men have little education of any sort."

"But we are raising requirements all of the while in order to keep those fellows out."

"Why do even your best men continue to talk about moving bones when they know that a bone of the spinal column, for example, cannot be budged a fraction of an inch and that it would not stay lodged for a fraction of a second if it could be moved?"

"Don't you regulars give bread pills to people?"

"Yes, but not when they have actual physical ills requiring real diagnosis and treatment." The implication of his last question evidently lay in the idea of capturing

the imagination of the patient and fixing his attention upon something definite, like moving bones, in order to allow an osteopath to get in his mechano-therapy with good results when applied in the right way in the right case. Who is to be the judge on that point? Certainly not the patient—certainly not the regular physician who is ill-informed on the subject of mechano-therapy—certainly not that osteopath who is poorly informed upon the subject of disease processes.

What the regular medical profession asks is very simple and reasonable. We ask that people who wish to practice mechano-therapy in any of its forms first obtain the preliminary education that is demanded of regular physicians by the State, because mechano-therapy essays to take charge of some phase of practically all of medicine. Given a preliminary education of the sort required by physicians, mechano-therapy would then become a most valuable specialty. A shorter educational plan for its practitioners would be feasible provided that mechano-therapists were given license to practice under direction of members of the regular medical profession only.

Opposed to that idea is the fact that members of the regular medical profession, as a rule, know as little about mechano-therapy as they do about other important specialties which do not belong to their individual lines of study and occupation. For example, the study of children's diseases includes a knowledge of general medicine basically, plus a superstructure of special art and science. Place me today in charge of a children's ward at the hospital and I would be completely lost—to say nothing about the children. Ask a corporation lawyer about some point in admiralty law and a baffled look comes into his eyes. Ask a trial lawyer about the status of some residuary

legatee and it may take him a good while to hunt up the right consultant.

If a chiropractor who knows little of general medicine manages to relieve the lumbago of a lawyer, that grateful lawyer may manipulate heaven and earth in an honest effort, before the Legislature, to secure a license allowing his chiropractor to break necks for the cure of headache. Is this an overstatement? It is not. We find such lawyers handsomely paid to do that very thing. The last case of broken neck that I saw was the result of "setting a dislocated axis" for the cure of headache on the part of a spinal manipulator who had not the most remote knowledge of the subject of headache with its real causes (ranging from eye strain to endocrine imbalance and to hereditary neurosis). Did the chiropractor know that? He did not! He told the patient that his headache was caused by a bone out of place—but the bone was not out of place until the chiropractor had yanked at it for a while. It then went out of place and the man had a broken neck. In the *Journal of the A. M. A.* for August 1, 1931, I read that a chiropractor broke a man's neck in order to break up a cold.

The news magazine *Time* in its issue of February 17, 1930, makes note of a meeting of The American Bureau of Chiropractic in the previous week in New York. B. J. Palmer, founder of the Palmer School of Chiropractic in 1903, is quoted as informing his colleagues who complained of failing income that the question of charge for services was a matter of salesmanship. "The trouble with you fellows is you're trying to tell your patients something, and expecting your patients to believe something you don't believe yourselves." This admission reached the newspaper Press as the result of a peculiar accident. It

seems that Reporter Alva Johnson of the New York *Herald Tribune* had really remained at the meeting and had actually taken notes instead of following the customary procedure of accepting one of the "hand-outs" which had been given to the reporters from other newspapers.

Hartwell's English translation of Klein's work on the subject of massage, published many years ago, and approved by the late Dr. S. Weir Mitchell, is still the most concise book on the subject of mechano-therapy. Although the shelves of medical libraries are becoming loaded with more elaborate treatises, I recommend for reading by physicians and legislators *Handbook of Massage* by Emil Klein, M.D., Ph.D., J. Blakiston Sons and Company, Philadelphia, 1892.

Massage and gymnastics are two separate branches of mechano-therapy; and that distinction must be kept clearly in mind. Both of these specialties belong to the larger classification of orthopedics. The history of mechano-therapy dates back to at least twenty-five hundred years before Christ, to the Chinese Kong-Fu, to the ancient Hindus, Egyptians, Greeks and Romans. Peter Henry Ling in the early part of the nineteenth century with his *Swedish Movement Cure* brought the subject forward in a way which aroused deep interest in Europe. Ling was lacking in scientific training and was ignorant of medicine. Nothing that he taught was new so far as principles were concerned; but as a forceful teacher he gained the respect and admiration not only of his students but of the laity in the highest European social circles. He secured remarkable therapeutic results of unquestionable value in a special field of work that had been neglected by the regular medical profession, which savagely attacked him and his followers.

Every specialty in medicine has tremendous values, few of which may be known to men engaged in other specialties or even to the general practitioner, because of the unwieldy sum-total of our knowledge. Why the attacks upon Ling and his followers if they were really doing so much good? Because mechano-therapy, like other specialties, lay outside of the curriculum of Medical Colleges and was not taken up as a specialty by graduates in medicine—because mechano-therapy implies expenditure of muscular energy as chief method of procedure in the treatment of patients. All other specialties in medicine imply expenditure of mental energy. Specialties calling for mental energy have been chosen first because that has been the whole trend in medical education. The World War and epidemics of infantile paralysis have suddenly called mechano-therapy into its own, but mechano-therapy in the past was exploited by fantastic cults of ignorant and uneducated men who had little besides muscle to put into the healing art. Members of the regular profession saw the harm that was being done. They stood instinctively as guardians and protectors of the public. Patients who had been actually manhandled by ignorant muscle manipulators, came back to their physicians often too late to allow of life saving. This may account for the single-hearted prejudice that became wide-spread among physicians. They were too busy to go back of the calamities in hand and find the real values in this special field that were understood by a few responsible authorities.

At a hearing before a legislative committee a newspaper man asked me rather contemptuously, "Are you regulars not unduly prejudiced against these people who are asking simply for a license to do only one sort of thing without drugs?" I replied by asking another ques-

tion: "Would you be prejudiced against a bandit who had simply asked you for leave to take your wife out for dinner?" Of course we are prejudiced. A practitioner who secures a license for treatment along special lines, should restrict his treatment to suitable cases. I do not know of a single kind of illness, medical or surgical, that would not have been instantly claimed by any one of several cultists whom I have known and who were unquestionably honest. They were simply too ignorant to have any conception of the nature of these cases.

If a specialist in diseases of the eye were obliged to remove a loose cartilage from the knee joint he would be overcome by consternation. Even were he to attempt it, a calamity for the patient would almost certainly follow. On the other hand, a specialist in joint diseases would be quite as badly off if he were called upon to remove a lens for cataract of the eye and the patient might lose one eye, if not two.

Osteopaths, who have now become specialists in mechano-therapy, are therapeutic resources for the physician who knows how to make use of such specialists. Resentment was aroused because their more ignorant members claimed almost the whole field of medicine, as did the early practitioners of Swedish movement. Their best men were fully aware of that fact. The regular profession demanded that osteopaths start from the same take-off as all other specialists in medicine. It seemed a fair sort of demand.

Spinal manipulators sometimes ask for license on the ground that they will not interfere with physicians because their own work is drugless. The prescribing of a little thing like castor oil for possible beginning appendicitis doesn't count! Castor oil does count to the extent that

any cathartic in such a case is one barrel of a double-barreled shotgun—manipulation is the other barrel. Either one alone may, and does, kill. Both barrels fired at one such case give double chance for a killing—and such killing is done today.

When a layman feels the click of a bone going into place at the hands of an osteopath, chiropractor, or bone setter he must always stop to ask if he is not being played for a booby. The trick, when a fraud is intended, is conducted by the operator snapping the second joint of his thumb in such a way that the patient gets the impression that it is his own bone being moved instead of that in the thumb of the manipulator. Almost anyone may learn to develop this trick after a little experimenting. It was shown to me by a bone setter who had gained a competence from an invention and had retired from his medical work. If a deceived patient allows the manipulator to go ahead and get in the really legitimate part of his work, there may be quick relief from various kinds of pain. The fraudulent part of the procedure, however, gives *prima facie* evidence of a willingness to mislead.

It will be many years yet before our profession in general becomes aware of the vast importance of spinal cord reflex centers that exert governing action over all internal organs. Our interiors constitute a veritable mine for new exploration. Osteopaths and other mechano-therapists have opened the door and shown us the stairways. They have demonstrated some remarkable results that may be produced in the functions of organs by stimulating the spinal cord centers. The fact that mechano-therapists have done so much terrible damage along with so much demonstrable good means only that the potentialities in this field cover an area too large to be left uninvestigated by com-

petent internists. The latter argue that they are already more than fully occupied. What is to be done about it?

At one of the hearings before a legislative committee at Albany, an osteopath stated that members of his cult had treated half of the members of the Senate and House at Washington. I suspected as much when observing the behavior of Congress on questions of re-apportionment, farm relief, tariff, soldiers' bonus, and a World Court. Backbone treatment of some sort appears to be in large need at our Capitol. If a spinal manipulator moves the bowels of a politician, after regular doctors have failed (and he may really do so), that grateful politician may manipulate the bowels of a legislature until it passes copious laws against the regular medical profession.

The regular medical profession is not prejudiced against the truths that osteopaths and chiropractors have adopted. It is, however, prejudiced against the falsehoods promulgated and retained by them. So long as truth and falsehood are presented to us in one mixture we are likely to remain prejudiced.

A keeper at the Penitentiary was showing a kind lady about. She stopped to talk for a long time with one of the prisoners. Catching up with the keeper she said, "Do you know, Mr. Finnegan, I believe there is a great deal of good in that man." To which Pat replied, "Indade there is, Ma'am. 'Tis not that he was sint up for."

CHAPTER XVII

FADS AND CURES

IT IS by no means the ignorant alone who flock to curists and who have faith in them. Man in the course of evolution developed a number of structural anatomical weaknesses when he began to walk erect; and at the same time his mental processes became more or less untrustworthy. He stands today midway between partly lost instincts and imperfectly acquired methods of reasoning. The ignorant, who flock to various healers by thousands, are moved chiefly by appeal to their emotions. The educated, on the other hand, are cured through intellectual processes.

Some cures have been basically valuable. Some have been extremely harmful. Epidemic diseases are spread by pilgrimages to shrines. Physicians know of many deaths that have been brought about by the violent methods of bone adjusters. Sectarians treating early stages of mumps, smallpox, and scarlet fever without recognizing the symptoms, do considerable damage by passing contagions along before learning the nature of the disease. It is not always easy for the most expert diagnostician to know just what he is dealing with at the outset of an infectious or contagious disease.

In matters of finance there have seldom been more than one or two harmfully fanciful theories before the

public at any one time. Free silver, Populism, or a fine enduring prosperity, which is to follow political tariff rates in the interest of a few producers, may sway large masses of people; but for a short time only. In medicine, on the other hand, all through history, a much larger number of harmful theories have been in the field at all times. We take better care of property than we do of our bodies, perhaps because we can hold property in our hands and measure its dimensions. A financial fancy may be reduced to its basic figures after its orators are exhausted, but in medicine almost every fad has a spark of real value which keeps orators voluble.

What is meant by the word "cure"? It may relate: firstly, to unexpected effects of unusual treatment; secondly, to peculiar but understandable effects of treatment; and thirdly, it may mean effects brought about by "healers" who represent whimsies.

The first group of cures—unexpected results of unusual treatment—is exemplified by "miracles" following lightning stroke. A good many persons have been struck by lightning; and those who were not killed had peculiar after-effects, some of them curative. Tilesius records the case of a deaf man struck by lightning whose hearing returned immediately afterward. Le Conte describes a case of a negress suffering from anemia, apparently of the pernicious and sometimes incurable type, who promptly returned to a normal condition of health after being struck by lightning. He also refers to an elderly woman, decrepit as a result of years, who returned to a normal condition of young womanhood following a lightning stroke. I know of some who would take that chance. In the Sycyando case of Cracow, a young man who had a painful stiff right knee was riding in a wagon which was struck by

lightning. One of his legs was cut off at just the right place to allow him to wear a false leg subsequently. The amputated leg was found at the roadside a few days later. A man in Carteret County, North Carolina, with paralysis of facial muscles which prevented him from closing his eyelids, was cured by a stroke of lightning. Physicians would like to employ treatment that would take hold like lightning, but, unfortunately no such cures can be prescribed in regular practice. However, an ambulance surgeon told me of a hurry-call to a case of kink in the bowel which doctors all know represents an extremely serious condition with impending disaster. On the way to the hospital the bumping of the ambulance unkinked the bowel, the patient was cured and walked from the hospital on the same day.

In the second group of curious cures, the peculiar effects of treatment are understandable. For example, we find sometimes that when proper adjustment of glasses has been made for a patient suffering from eye strain, a chronic dyspepsia is promptly cured. Cocaine or nitrate of silver will desensitize a certain tiny spot in the nose and sometimes completely cure certain disturbances of female function. Rheumatism involving the knee joints may promptly disappear upon discovery and treatment of an infected tooth root; and no end of mysterious illnesses disappear upon removal of infected tonsils. A number of forms of insanity become cleared up when proper attention is given to treatment of some of the endocrine glands, the thyroid being one of these. Many writers of modern fiction might be cured of their morbidly destructive influence upon our social structure by properly conducted gland treatment. This, however, would cost money instead of bringing in royalties from publishers.

Somebody who was deaf discovered that hearing had been temporarily regained after a rapid descent in an aeroplane accident; for a while many others subjected themselves to this dangerous and expensive treatment, until it was found that the same rapid change in pressure might be accomplished for selected cases in simpler ways by ear specialists.

Now for the third group of curious cures—the so-called cures conducted by healers, who have furnished an enormous amount of newspaper copy and have at times moved multitudes. Subjected to analysis, such cures are found to be based upon capitalization of optimism. The pessimist must remain uncured as a penalty for his ungracious attitude toward life. Anyone who is sad or worried becomes actually depressed physically. This in turn may lead to many ills like dyspepsia, headache, sleeplessness, neuralgia, or nerve pains in various parts of the body. What is known as "a state of mind" will account for many illnesses, while a changed state of mind may bring about a cure. We must except, of course, actual organic diseases and infections, which make most of the real daily work for regular physicians. Even these, however, may be distinctly benefited at times by fad cures, so far as symptoms are concerned.

Great numbers of healers with their various methods of treatment have followed each other all through history. We have endless descriptions of miraculous healing, "after physicians have failed," but bizarre healing methods are more or less "personally conducted" and fall into disuse rather promptly without their leaders.

Dr. James J. Walsh, in his book on this subject, states that nearly every substance on the earth, or under it, or in the heavens above has been employed as a vaunted

cure—together with various mental appeals, including the metaphysical and the religious.

One of the most recent practitioners of the faddist art was Coué. It was reported that 60 per cent of the thousands who flocked to him every year were cured, 30 per cent benefited and only 10 per cent not improved. If one will say, "Every day in every way I am getting better and better," as Coué suggested, he will actually note beneficial effects. This is called "auto-suggestion."

Some of us, engaged in surgical work, asked certain patients after operation to adopt the Coué formula. Curiously enough, it sometimes hastened convalescence. The physical response was quite as notable as it is in the cases of mothers who after surgical operation say to themselves, "I must get back quickly to my children who need me so much at home." Such patients often pull themselves out of conditions which cause a surgeon grave anxiety. Many members of the medical profession deeply regret the passing of Coué.

Medical men also regret the division of authority in the ranks of Christian Science, fearing it may lessen its powers. Christian Scientists made the very best of surgical patients. We often saw them curing themselves of such a compelling illness as nausea resulting from ether. Their formulas for capitalizing optimism with curative effect were more profound than the simpler method of Coué or the early-morning barefoot walk in wet grass of Father Kneipp. Almost any one who will get up early enough in the morning to walk in wet grass will be so inspired by the songs of birds and the beauties of morning lights and shadows that he will go forth refreshed for the day's work. The disappearance of many of his ills may certainly belong among curious cures. In addition,

the barefoot walk in the dewy grass implies "early to bed" and its famous consequences.

How is it that some of the blind actually see, some of the deaf actually hear, and some of the paralyzed actually regain the use of arms and legs, and furthermore, retain their gains? In this particular group of cases, the mental specialist may often find an eye that is insensitive to the touch, a collar-bone that is tender upon pressure at its inner end, and other well-known signs belonging to what is known as "major hysteria." Major hysteria is quite different from the minor hysteria with which the public is familiar. It is much more than a sudden upsetting of nerves commonly spoken of as "hysterical behavior." People with major hysteria have a profound illness, the symptoms of which are sometimes obscured by their everyday activity. These people are popularly classified as "peculiar." Features of major hysteria include simulation of real disease, craving for sympathy, craving for notoriety, and frequently a desire to cause surprise.

A number of these factors come into play in cases of the blind, deaf, and paralyzed who really are cured, so far as these particular symptoms are concerned, by means of the healers' methods. The nature of the cure is not very important—anything from blue glass to Freud may suffice.

Dr. Elisha Perkins of Plainfield, Connecticut, noted the contraction of muscle when touched by a knife in the course of an operation and imagined that metallic substances had some peculiar effect upon nerves and muscles. He made up two rods of metal, about three inches long, and proceeded to pull out disease with his "tractors" by merely drawing them over the affected part. Some of the

most distinguished men in the nation testified to their value.

Perkins' tractors can now be found in medical museums. Dr. Oliver Wendell Holmes said that the tractors were used on him and that somehow he passed through the treatment unhurt, as well as through the usual children's diseases. Dr. Perkins was curing many thousands of people when he was expelled from the Connecticut Medical Society for quackery. This advertised him to such an extent that people from other States came to Connecticut for treatment. He claimed that he could cure anything for ten dollars, and ten dollars of that day was equal to fifty dollars today.

His son went to England and started in by curing a Duke and Duchess. His services were valued because of the social height of the persons who employed them. Similar successes are encountered every day. Abroad there are classes of purveyors—Purveyors to His Royal Highness, Actual Purveyors to His Royal Highness, and Actual Active Purveyors to His Royal Highness. Almost any Highness may raise the level of a medical, commercial, or political quack.

Sometimes, when I have been talking with a European friend whose knowledge and philosophy were deeply interesting, a chamberlain would walk into the room, twirling his baton and conducting some Highness. Instantly a far-away look would come into the eyes of my friend, his conversation would become unintelligible and his knees would become so weak that I have wanted to kill the poor thing to put it out of its misery.

In England, they not only welcomed Perkins at two Universities, but erected a Perkinsonian Institute so that the poor as well as the rich might have the benefit of his

wonderful new invention—a rare feature of fads. Young Perkins came back to this country declaring that he had healed 1,200,000 people.

Count Mattei, wishing to rejuvenate a dwindling estate, decided to treat cancer patients with injections of a secret remedy. He made a fortune rapidly. Everybody got to talking about the Mattei cure. Mr. William T. Stead, editor of the *Review of Reviews,* was so deeply impressed that he soundly abused physicians for even questioning a person with the social standing of Count Mattei. In literary thunder he denounced the entire medical profession for its bigotry and intolerance. One of the cases got into court and the nobleman was forced to confess that his secret cancer cure was nothing but sterilized water with a little coloring matter. In America, we have had many so-called cancer cures, that ran a similar course, because civilized people have a craving for deception. Even sapient men are caught in the meshes of this apparently primal urge that P. T. Barnum capitalized. He knew people would pay for the satisfaction of being fooled.

Every year, physicians see many cases of cancer that have become hopeless. A woman suddenly discovers a small lump in her breast. She waits for a month or so to see if it will not go away under treatment by some kind of household ointment. Next comes the visit to her physician who suggests that it may not be anything serious, but he will have her see a surgeon. She then deserts her physician because of his suggestion of surgery and confides in a trusted friend. The friend is almost certain to remember about some one who cures almost everything without medicine or surgery—something new and up-to-date.

After six months of fad treatment at cash expense—

cash, mind you—the lump has become larger and another one may be found in the arm pit. Money wasted and confidence in everybody gone, the patient again appears at the office of her old and once trusted friend, the family physician. He takes her to the surgeon and learns that it is too late for a cure. Operation may prolong life for a while, but that is all. A real cure for cancer has not yet been found, aside from operation very early and the employment of radium or X-ray. Experts are seeking to prevent cancer by controlling the development of the cancer cell, and hundreds of men are now engaged in research along this line.

The Emmanuel Movement started out with a great deal of vigor, but it was definitely a one-man affair. Those who followed its leader lacked the personality necessary for carrying conviction and failed to cure many of those who came to them. Thousands had flocked to its leader, but we hear little of his methods today, except in the healing by laying on of hands by certain exceptional clergymen who can make the cure work. All depends upon their personality.

Many of us remember the blue-glass treatment of General Pleasanton. Thousands of people sat for hours under blue glass and were cured of all sorts of ills. New Thought, Mesmerism, and Magnetic Healing would have cured the same class of patients.

A responsible member of the American Therapeutic Society advocated the employment of chromium salts to cure an astonishing list of illnesses. His reports were made in good faith, in the presence of a critical group of doctors, none of whom, so far as I know, ever accepted them. The good doctor was deceiving himself but could not "pass it along."

One of my old chums, now a manufacturer of proprietary remedies, said that he could pound up brick dust, advertise it and get heaps of letters testifying to cures. Some of the letters enclosed photographs and a request that these be published in newspapers, along with the testimonials!

In the *New York Times* for June 6, 1930, was an account of a man whose legs had been injured in an elevator accident and who shot a spiritualistic medium because she refused to refund him the $500 that he paid to her for a "cure." Her card read "Bueno-Palmira, Spiritualist Medium. Cures all Classes of Cases."

In a city of the Far West, a man and his wife paid $45,000 to a pastor of a church for "inside information on the secrets of the universe." The pastor also claimed that he could cure all chronic diseases and bring the dead to life. The swindle was taken to court and reported in the newspapers. Perhaps this astounding combination of credulity and cash is a result of prosperity among people who cannot adapt themselves to it.

At the present moment we are in a whirlwind of food fads. New findings in the laboratories of nutritional experts are seized upon by commercial interests, and their advertising of half-truths is greedily swallowed by folk who are proud of the fact that at last they are really learning something. In the end, this arousing of food consciousness in the public is certain to be beneficial. Inertia on the subject is being overcome and complacent inertia is the chief obstacle to progress in any path of human welfare. People have to pay for the diet books gotten out by these "food systems," and anything they have to pay for usually does them some good, in theory at least.

But "one man's meat is another man's poison." A food

system puts one man on his feet and puts another man in bed, perhaps, unless the regimen comes from a doctor who knows what he is about. I tell people to go to Sweden and take regular diet there for a first course of treatment. If at the end of a month they have gained the physique, color and lusty spirit of the Swedes, nothing more need be said. When milk and eggs are prescribed by mail for someone who is sensitized to milk or to eggs—and there are many such—the result is like that in the case of a patient who was listed for one cigar per day. It made him worse—he had never smoked previously. The idea that proteins and carbohydrates are not to be eaten in the same meal has never appealed to bears or to pigs, yet they have gained a reputation for pulling through somehow, despite the advertising. The statement that water taken at meal times has the effect of diluting food too much should be posted by the spring where cows may have warning. Briefly: a diet should not be prescribed for anybody except by the physician who has made a careful study of the case.

I had occasion to visit a health resort founded upon the reputation of a magnetic spring. Some of the people who had been coming year after year testified with enthusiasm to the benefits of the water. It was not magnetic water. Somebody had driven an iron pipe into the ground for an artesian well and obtained a permanent flow of water. Somebody had noticed that a knife blade brought into contact with the pipe became magnetized, hence the deduction that the water did it. Any iron pipe or rod driven into the ground at right angles to the plane of the surface of the earth becomes a magnet because of terrestrial currents.

Ostensibly, a State license permits medical sectarians to

take charge of such cases only as belong to their peculiar methods of treatment; but sectarians promptly claim, of course, that almost anything in medicine belongs in one way or another to their peculiar systems. A faddist in a small city that I have had occasion to visit from time to time boasts that his income is larger than that of all the physicians in the town combined. The doctors tell me that his boast is probably not far from the truth.

Upwards of 25,000 medical quacks, manufacturers of spurious "cure-alls," peddlers of nostrums, "inventors" of diet, exercise and other worthless systems, and others who prey on the ill and gullible have been listed in the new "Rogues' Gallery" of the New York City Department of Health, said to be the first of its kind in any health department in the world. The gallery was compiled by the National Better Business Bureau, Inc., at the request of the Department of Health to aid in driving the quack and the charlatan out of business. Special Deputy Health Commissioner Edward F. Brown suggested the creation of this "Rogues' Gallery," and the work was carried out under his direction. Edward L. Green, Director of the Bureau, detailed Allan E. Backman and a staff to do the compilation in January, 1930, and the task was completed July 13th. The "gallery" has been installed in the Division of Legal Medicine, Department of Health, where it will be under the direct charge of Dr. S. Dana Hubbard, Chief of the Division. It will be used in tracing complaints filed by victims of quacks, in preparing cases against violators of the medical and drug laws, and in all other legitimate channels.

The gallery had its inception when Dr. Wynne, early in 1930, opened his drive to rid the radio broadcasting field of medical quacks and other charlatans. He advo-

cated the compilation of a so-called "Index-Expurgatorius" and asked to have a committee appointed to guide owners of radio broadcasting stations, and to protect them from marring their programs by permitting quacks to broadcast.

While the majority of the owners of radio broadcasting stations in New York tentatively agreed to bar the undesirable quack and the disqualified doctor from the air, it was pointed out that the restriction would only apply to New York City and that stations in other cities and States would furnish nests for these vultures. Commissioner Wynne then appealed to the National Radio Commission, the United States Public Health Service, and the Federal Trade Commission urging a joint survey of the radio field throughout the United States and compilation of a national index which would be available to all radio broadcasting stations.

Quacks and charlatans who have been barred from the advertising columns of our better newspapers were infesting the radio service. A goat gland specialist advertising in Kansas, established his own private radio station and became, for the time being, responsible to no one but himself. His license has been revoked in Kansas, and he is now telephoning programs from Texas, across the border, into Mexico where they are put on the air by his new and more powerful station X E R. By this clever ruse he seems to have placed himself out of reach of both U. S. and Mexican medical authorities.

In Berlin, in 1879, there were only twenty-eight quacks, but in 1907 the number had increased to 1,349. In 1898, Germany published a report showing that 20 per cent of the quacks in Prussia belonged to the laboring classes, 40 per cent were artisans, 16 per cent were tradesmen and

only 24 per cent had followed occupations requiring considerable schooling. But it was not until 1927 that Germany passed the first severely restrictive legislation for the control of quackery.

Legislators in this country have made it almost impossible for a high-class physician to compete with uneducated faddists. They have granted the faddist a license to practice, after he has had just a few weeks or months of study following scant education, sometimes not even a high school education. Dr. C. S. Huffman, writing in the *Journal of the Kansas Medical Society* for 1914, said that during his eight years as a member of the Kansas legislature, he found "a large majority ready and willing to support any measure that vitally strikes at the regular medical profession, pure food regulation, or matters pertaining to boards of health." Until very recently, physicians in New York and New England have had to meet the same sort of attitude on the part of legislators. Rapid change for the better is now taking place because of better organization of effort on the part of State Medical Societies under the direction of the American Medical Association.

Medical laws in some States still allow a "blue sky" kind of freedom for cultists and at the same time make meticulous demands for the education of regular practitioners, but in all probability the peak of licensing of medical faddists by State Legislatures has passed in the East and is now on the decline. At one time discriminating legislation against regular medical practitioners was the rule in all States.

The following Act [1] to Regulate the Practice of Chiro-

[1] See *Journal of the American Medical Association,* May 15, 1930.

practic, signed by the Governor of New Jersey in 1930, is most revealing:

> Definition of Chiropractic: The term Chiropractic when used in this Act shall be construed to mean and be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death, the science of the cause of disease, and art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other by hand, thus correcting all subluxations of the articulations of the spinal column, for its purpose of permitting the recreation of all normal cyclic currents through nerves that were formerly not permitted to be transmitted, through impingement, but have not assumed their normal size and capacity for conduction as they emanate through intervertebral foramina—the expressions of which were formerly excessive or partially lacking—named disease.

If New Jersey people "got that," more power to the elbows of their heads! We can see what Governors are up against when trying to add a new group of voters to their list, regardless of public welfare. This new group of chiropractic voters will now be free to spread infections, to hasten or to cause deaths by treatment upon wrong diagnosis and directly to injure people of the State of New Jersey.

Many years ago, I went up to Albany as one of the delegates from the New York County Medical Society, to oppose bills that were being introduced by faddists, cultists, and sectarians who sought legal standing. Shortly after, I was asked to go before legislative committees in two other States, and sectarians came to look upon me as an arch enemy. Threatening letters became a feature of my mail. That was evidence of progress being made. I was not attempting to lend a hand toward changing any

beliefs, but merely asking that legislators avoid discriminating action against the regular medical profession.

Sectarians were working together harmoniously in mass-unit force against the "Medical Trust," as they called the established profession. Cultists who sought legal standing at that time, as I remember, were Osteopaths, Chiropractors, Christian Scientists, Phrenopathists, Clairvoyants, Esoteric Vibrationists, Psychic Scientists, Naturopathists, and Magnetic Healers. Every one of these groups had a following. Combined, they constituted a serious menace because of influential people who believed in them implicitly.

Mark Twain was at Albany to support the Osteopaths, who at that time were in their crude stage of development. The modern educated ones know very well what that means. I presented a section of a year-old child with spine sawed through lengthwise and asked the legislative committee to see for themselves if the talk of really moving bones was not fraudulent. My point was futile. Mark Twain arose in the audience and said that anybody could now see how children were treated by the regular medical profession!

Augusta E. Stetson, a very handsome woman with a sweet low voice and a captivating feminine air which cast a hypnotic spell over the men folk, represented the Christian Scientists. She said that her paralyzed arm had been cured by Christian Science after the doctors had planned to cut it off. I explained that doctors do not cut off arms for the cure of hysterical paralysis. The murmur that ran through the audience was one of deep disapproval of any such tactics aimed at such a gentle lady. "Protect the woman" is an unwritten law, basic in origin, and one to which men instinctively respond with vigor.

Almost all of the medical sectarians had influential points of contact with my clientele in one way or another. Effects upon my income were usually insidious, but sometimes definite. A lieutenant-governor of a neighboring State, whose family had espoused a sectarian cause, became so enraged at the blocking tactics in which I had a hand that he and his friends diverted all of the clientele that I was beginning to draw from that State.

The responsible physician does not mention names of people of prominence who belong to his clientele even when such mention would have no particular significance. It is an unwritten law of taste religiously observed by doctors of high standing. The faddist, on the other hand, usually capitalizes any names that will enhance his "business." A member of a legislative committee once asked me why we could not make a good showing of important people successfully treated. The faddists had long lists of them and it impressed the committee, he said.

An understanding of the general nature of curious cures may be obtained by almost any boy or girl who would enjoy making a simple demonstration. Catch a common hen. Hens are highly impressionable; they develop notions, and even become hysterical at times. We are to cure a hen of an attack of nervousness, let us say.

Draw a chalk mark on the barn floor—press the hen down snugly in sitting position on the floor and far enough from the chalk mark so that her bill will just touch it when her neck is pulled out to full length. Place her bill on the mark. Now make slow methodical closing and opening of the left hand when releasing pressure on the hen's back with the right hand. Back away for a short distance but continue the rhythmical movements with the left hand. The hen is hypnotized and powerless to remove

her bill from the mark. There she will quietly remain for a long time unless released by the experimenter waving the hand in another direction quickly or stepping out of sight.

The hen upon coming out of the trance has lost her fright, cured temporarily at least but still remaining a hen, just as a cured neurotic patient leaving the faddist's office after any kind of treatment is still a neurotic. The hen while in a trance may be unable to move even if a dog, of which she is afraid, runs up to evince kindly interest in the proceedings. On the whole, however, it is better to have quiet surroundings like those of the treatment room of a medical faddist.

The helpless hen with her bill on the chalk mark shows to extreme degree the condition of a patient being treated by a Charcot or a Freud or by Perkins tractors, the chief difference being that she does not have to pay anything for the treatment. Any one of the three methods may be equally applicable for treatment of a given case. In order to get the patient into a properly receptive mood, use a metaphysical idea to confuse the understanding. Charcot used a bright object, causing brain fatigue, to confuse vision, and Perkins used a couple of metal rods to mystify. Hypnotism in the right hands, like psychoanalysis in the right hands, is valuable for the treatment of certain well-defined conditions. Under that influence we see remarkable effects in cases of shell shock and traumatic neurosis.

Dipsomaniacs, and other drug addicts, along with various mentally diseased cases who have loss of will power, may sometimes get on famously under the artificial will power furnished by way of suggestion. The patients, however, display a more or less morbid attitude which is recognized as such by their friends, harmless enough ex-

cepting when it is carried into literature by patients who are novelists. I have not visited Bernheim's Clinic in Nancy, but the suggestion theories of this School stood in opposition to the three stage hypnotism of the Charcot school.

The Salpetrière stage performances were a curious mixture of fact and fraud, based upon a considerable amount of good new material worked out in the wards and then dramatically presented. When I first saw a Tuesday exhibition of Charcot at La Salpetrière, it seemed to me that about half of the world could be brought into that sort of eerie spook-house were it not for the fact that followers of the master were not so expert as he. Charcot had more than two thousand personally conducted freaks under his control at La Salpetrière and there was lack of room for developing morbidity in more people. We are not to blame the lay public for going into Christian Science when doctors of education become disciples of a Charcot. A certain definite amount of good comes out of these exploring expeditions into mentality.

Medical faddists obtain strong support from people who, at last, after many failures, have found something new and understandable. They zestfully tell of cures after doctors have failed, and the telling is sometimes accompanied by an attitude of widely opened eye and dilated nostril that belongs to the snake story. There's a cautious, yet impatient glance about in order to catch any skeptic in the audience and to aim emphasis in his direction. When it comes to a matter of putting up actual money for the support of institutions of the faddist, however, there's much second thought. I am reminded of two German-American friends at the table of Tante Niemeyer down on Eleventh Street. One was insistent upon his point of

view in arguments and always offering to bet on it. The other became wearied of this one day and exclaimed impatiently, *"Ach! Koch, du wettest immer* but *du hast niemals die* Courage to back it up."

There are individuals who prefer controversy to knowledge of fact. For example, two people will stand on the pavement in front of a butcher shop and argue over the question of movement of bones of the spinal column by manipulators. If they were willing to step just inside of the shop and take one peep at the spinal column of a sheep or pig sawed lengthwise, the question would be almost settled, but not quite—there are some who would still hold that man as a special creation is different from other animals and has in all probability a backbone that is more or less spiritual in its nature.

There is usually an important germ of truth in almost any absurdly exploited idea. A whole system of fad treatment having its own journal (*The Orificial Journal*) was based upon the idea that treatment of the orifices of the body gave astonishing results. The keystone of the idea related to malign influence exerted by irritated rectal papillae. After an examination into this particular part of the question, I had to be on guard myself against exaggeration of the importance of inflamed rectal papillae. In order to get at the matter in a scientific way I asked one of my assistants, Dr. Bert B. Stroud, to make a report upon the anatomy of these papillae. This he did in the *Annals of Surgery* for July, 1896, and I commend a reading of that report to all members of our profession who do not know about it. The editor of the *Annals* made it his leading article for the month, yet I doubt if a thousand of our one hundred and fifty thousand doctors have read it.

CHAPTER XVIII

PSYCHOANALYSIS AND METAPHYSICS

DASH and I had a hard hunt today. A northwest wind piled glistening snow in long slanting heaps on the lee side of everything, whisked it from lodgment in dark pine branches and buried fox tracks so deeply under drifts that when we got back to the farmhouse, brave old Dash looked thoroughly discouraged. He is now stretched out for a comfortable nap before the open fireplace, but something seems to be disturbing him. His paws are twitching spasmodically and he is giving voice to a dream.

What is he chasing? If it were a deer there would be a long-drawn-out note of baying; if a fox, a more eager and shorter note. Dash has been punished for chasing rabbits and knows that he must not do it; but now in his sleep there comes the quick impatient cry that means a rabbit track. And such an honest-looking dog he has always been! Who ever would have suspected that as a pup he must have had some sexual shock and that ever since that time his "censor" has been repressing the rabbit tendencies and forcing them into "the unconscious," his respect for me acting as a sort of "social compunction." Dash has unwittingly given me a "complex indicator" and a convincing picture of the control of mind over body. Professor James Law once assured me, when I took

his course in Veterinary Surgery, that I would learn much of value, because a cow would not deceive me in answering my questions.

The idea that mind has a very distinct effect upon body is no fanciful observation of my own. As early as 1884, Hack Tuke declared that a patient's mind constitutes a factor to be reckoned with in practically every case of illness. His book on the subject should be used as a primer by medical students of today.

Since Hack Tuke's time, the subject has been capitalized and put into harness by endless promoters of mental systems. More than that, it has been elevated to the status of a religion, shifting the responsibility and credit for healing to a higher power which has been given metaphysical position in the skies.

This so-called Metaphysics is a game of solitaire, played with a barrage of words. It captivates the imagination of people with vanity of intellect—intellectuals of the sort who in the days of Pliny dosed themselves with cumin for the purpose of giving the face that pallor which was supposed to belong to philosophers. Ray Lankester gave an apt picture of metaphysics—"A blind man searching in a dark closet for a black cat that isn't there."

"Science without philosophy is blind. Philosophy without science is blind," and the latter may be like the mule that Rastus bought from Mr. Johnson. On the way out of the yard the mule ran into a tree and smashed the buggy. Rastus went back and said, "Look a yer', Mistah Johnsing. Dat ar mule am bline."

This brought an immediate response, "No! Rastus, he ain' bline, he jes don't give a damn." So with a philosophy that has to secure its facts by rationalization.

It is not an easy matter to persuade people that specu-

lative philosophy belongs with superstition; temporarily taking the place of knowledge until knowledge finds time to fill in the gaps with fact. The reason that philosophy becomes so pompous is because it needs to put up a bluff for self-protection. People take philosophy so seriously that in its religious phase actual distress may result. One of my young theological friends walked the floor at night and could not sleep because he was suffering—not from earache but from change of belief. I tried to be a comfort to him by saying that what a man believed did not amount to a row of shucks—the only thing that counted was what he did.

In science, men of opposite views wait for facts before developing personal feeling on points, and then it is too late. A thing is so or it is not so. In philosophy, on the other hand, a great deal of feeling goes with points of view.

Hippocrates liberated medicine from religion. Virchow liberated medicine from philosophy and gave us to understand that mental illness depended upon physical causes. Experimental medicine then took the lead, but Freud has tried to set us back to the middle of the last century to the days of Schelling and of Hahnemann. Freud calls his system "metapsychology," and uses psychoanalytic methods.

When Freudian methods arrived I gave them a trial, in order to obtain first-hand impressions of their working. Patients of mine were subjected to mental manhandling and none of them gained any lasting benefit. One of them, who was subject to unaccountable attacks of depression, returned to my office almost spiteful toward me for having recommended that sort of treatment. Said she, "Why did I tell him things that I did? It was all

false and made up. I seemed to be hypnotized. He was so eager and insistent upon certain kinds of information that I could not resist an impulse to tell him things that were not so at all. After coming out of the spell I was mad at him and at you."

This patient might have been told that psychoanalysts like to have what they call a preliminary negative transference, but she had a rather dark flashing eye and I wished to retain her in my clientele, hoping that some day she would get a broken arm or something that would be more in my line. Her interest in Freudian psychoanalysis had really been aroused, however. She expressed a willingness to have one of her neighbors analyzed, if she might be permitted to listen through a keyhole. This patient was later found to have an error of optical refraction. When this was corrected, the "unaccountable periods of depression" came to an end. The psychoanalyst had not inquired into physical causes for the mental condition.

This led me to ask a hypothyroid patient to undergo Freudian analysis for her periods of mental confusion. I offered to repay to her the amount of money expended for fees, but as a young woman of independent means, it was her wish to pay the cost herself. She promised to get in some "complex indicators" that would lead the analyst toward a thyroid diagnosis but he totally ignored any such mundane thing as physical cause. Her confusion was controlled readily enough, later, under treatment by an endocrinologist.

A youth was sent to me with dementia praecox. He had a large varicocele and wanted to know if it had any influence upon his psychosis. I expressed doubt upon that point, but, according to custom, said that the varicocele

should be cured on general principles. When the young man left the hospital without change in mental condition beyond that deception stage which goes temporarily with hope, he was placed in charge of a Freudian. There was no improvement, and I finally sent him for treatment to Dr. Sajous, who claimed that very many psychoses were amenable to endocrine treatment in advance of fixation of morbid habit. Under his treatment, the young man became perfectly well and has remained so for many years.

An old friend began to be distressed by troubled dreams and mental disturbance causing worry. He came to New York with the idea that he would like to have a psychoanalysis. I sent him to a high authority who failed to make any progress or even to make diagnosis. He finally wound up in Willard Asylum where he is today—with at least a diagnosis, I hope.

Two or three of my patients could not bear the continued expense of Freudian treatment. All of the new and advanced systems of treatment are for people of means who make serious effort at getting something out of the expense. I had not thought of that side of the matter as an item for criticism. People dearly love fads, especially the expensive ones.

Another patient of mine went to psychoanalytic headquarters at Vienna seeking relief from symptoms, which I at once found to be caused by an obvious endocrine defect (hyperthyroid). She told me that no physical examination of any sort had been made in her case. She had simply been informed that she was herself, and that whatever troubles she had belonged to herself, and it was herself that required treatment. And this sort of advice had been given at considerable expense by two high authorities who felt she could afford it. One of the doctors who

treated her has written fascinating books on the subject of psychoanalysis.

In the sciences we assume that a given effect may be the result of a certain cause. The result of experiment must be definite and measurable. So far so good; yet one essential still remains. We must exclude all other possible causes. There is where Freud became extremely impatient, because from every side came evidence of causes for some of his phenomena which did not at all fit into his cause-effect theory. He discarded these good solid bricks simply because they did not fit; thus leaving a factitious result, "the unpardonable sin" in science. All this is said without intentional prejudice. I once broke an important dinner engagement in order to hear a Freudian analysis of Leonardo at the Academy of Medicine.

Instead of the deductive method of establishing particular facts from general principles, Freud followed the inductive method, obtaining what he told us were general principles derived from particular cases. He pretended to obtain genuine principles from just one particular case of an hysteric. He failed to use controls and simply asserted as fact beliefs based upon intuition—the worst crime that is known to science. Supporters of Freud have often been men of superior education but if we look into their academic degrees we may count upon finding a significant and explanatory B. A. or M. A. instead of B. S. or M. S.

Daydreams are composed of the same materials as nightdreams but we do not even need a daydream to furnish a "complex indicator." We may take as arbitrary starting point a word occurring in the course of plain ordinary thought, and proceeding by Freudian method reach a complex just the same. This fact to my mind de-

prives their dreams and "complex indicators" of all value. What we most need at the present time is a report upon analyses of Freudians made by Freudians. That should take us to the heart of things (or to the gonad of things).

Not long ago, a famous Freudian prepared a paper describing Lincoln as a schizo-manic. A noted psychiatrist protested against having any such paper read. Both men were highly esteemed personal friends of mine and I would go a long way to hear either one of them talk on any subject. The paper was finally presented to an audience at Toronto, and the listeners became so aroused that the term schizo-manic had to be explained. When the audience was told that the terrible term in translation meant simply that Lincoln had conflicting emotions and was given to periods of depression, calm was restored.

Freud's revelation of the importance of repressions in psychology might entitle him to a place in the sun, but the sun would consist of little besides sun-spots and its own repressions. My own prejudice against Freudians, freely admitted, is based upon an attitude similar to that expressed by homeopathists fifty years ago—"Give me the symptoms and you may have the diagnosis." The failure to make adequate checks relating to physical examination in advance of mental treatment classifies Freudians among the faddists. Long before Virchow, naturalists knew that structure and function were inseparable; but Virchow showed us that disordered cell function followed chemical injury of structures such as may be caused by toxins and metabolic wastes. Disordered mental function often becomes a natural corollary to deranged cell function.

Anyone who has aroused controversy to the extent that Freud has, however, and has kept his feet, is worthy of

honor. If his contributions to an understanding of the human mind have been fanciful rather than scientific, he has at least set men at thinking along lines of phantasy reduced to method. His hypothesis of the unconscious, his theory of determinism in the psychic sphere, and his postulate of the factual significance of ideas, appear not to be provable. Yet, by way of intuition he has brought in original suggestions of so much significance that the effort at refuting his theories has resulted in orderly analysis of mental processes to an extent hitherto unknown. He has given us extremely convenient working terms, although most of his complexes, fixations and categories are, to my mind, museum spiders fixed with pins and classified by the janitor.

Freudians make infantilism a keystone to their arch, but do not bother to study the actual child. They deduce the child after having evolved it out of their inner consciousness. When they infer that there are sexual tendencies in babies, they have not studied the babies directly as a pediatrician would do, but have based their evidence mostly upon reminiscence of a selected class of neurotic adults whom they have analyzed.

How about these sexual tendencies? The dowser with his divining rod finds that it turns toward whatever he is looking for. If he is seeking water his rod turns to that, but if he is after oil the rod does not budge a bit to water, no matter how much water is under it. So it is with Freud, the sex dowser, who looks for sexual repression because he can find that in pretty nearly everybody—a good safe bet.

Karl A. Menninger in his scholarly book on the subject of the human mind says that critics of Freud ignorantly confuse his meanings of suppression and repression. I

confess, that I, too, pause over the distinction at times. Turning to Webster's Dictionary on my table I find that even the definers made "suppression" a synonym for "repression." Menninger states further that many people get the wrong idea about sexual manifestations in infants, but he goes on to make the suggestion that, had Freud clarified that point by substituting the word "social" for "sexual," which would have served his purposes just as well, he would have staved off an enormous amount of criticism. I fear to turn to the dictionary again. "Social" and "sexual" may really have different meanings to some people, even in these modern times.

Under conditions of civilized life, normal cleavage of the foreskin in boys and girls is often delayed. Up to the third year of life, the process may cause so much local irritation that the little ones automatically try to relieve it. The good family doctor may pick up a pair of forceps, and with their blunt end may settle the question in about two minutes. Does the Freudian do anything of the sort, or does he leave the diaper pinned when it comes to anything so commonplace as a physical cause for the "tendency"? What he actually does is to go into a philosophical trance.

I have never heard a real child specialist say he had discovered "fixed symbolism" when seeking the cause for a cholera morbus. Freudian psychoanalytic methods furnish no direct view of facts. They are based on intuition.

Watch a dear little sunny-haired girl playing on the floor with her pretty white kitten, both of them in transports of affection with purrs and kisses galore. If some Freudian wishes to invent a sexual basis for that beautiful display of happiness, I shall invent a robot to give him a swift mechanical kick. Having attended to the first

duty, the robot will then point one hand up toward the angels and quote some lines from Plato's doctrine of ecstasy.

Dr. Knight Dunlap claimed that psychoanalytic teachings have corrupted college girls, but I have observed that college girls have almost laughed when quoting Freudian concepts in my presence. During the years of preparation for college, young girls fairly lap up anything that has the flavor of philosophy, but two or three years later they are pretty sapient about almost all of the questions that go the rounds. I have been acquainted with college girls for more than half a century and do not remember to have seen one of them hurt by anything. This, however, relates only to personal experience. I realize that inferiority complexes, not understood and utilized properly, may do enormous harm to young people. They need guidance by a competent psychiatrist.

Freud now has a little yellow dog following behind him in Buchmanism, which features the confessing of sex sins. People are supposed to feel better after "coming clean." There may be something in it. A bunch of commercial travelers going west on a train should give cards and spades to the founder of this "ism," and they appear to be a healthy lot.

According to biology, there are very few sex sins, aside from those belonging to pathology. Sex sins relate to an artificial standard that was formulated to fit monogamy—the most useful plan for the welfare of family and children that has been devised so far. What other plans may be formulated later I would not have the temerity to suggest (Russia is experimenting), but so long as civilization is living under a certain code, the sinner is that individual who talks about escapades. Society is patient about

some adventures that are kept quiet, but it despises anyone who confesses or who tries to find out too much—(always excepting the dignified Roman Catholic confessional). The Roman Catholic clergy have been reported as saying that nearly 90 per cent of their Church's confessions relate to sexual subjects. Almost everybody obtains great relief from getting almost anything "off his chest."

Theoretically, the Freudian "complex indicator" is supposed to be discovered in the course of free movement of thought on the part of the subject, but there is precious little free movement of thought in a woman's mind when a Freudian gives her the "mental set." The Freudian, insistent upon underlying trends of thought, assumes that the subject is passive in the course of analysis, and omits to inquire about the dominating control that he himself has exerted upon the movement of thought in that patient.

A Boswell of Freud, Dr. Fritz Wittels, claims that psychoanalysis has corrupted medicine, forcing doctors to admit psychical reasons for such diseases as so-called ulcer of the stomach, gall bladder attacks, disorders of the nose and throat and even appendicitis.

Freud is unquestionably as honest as was Mrs. Eddy—an attitude very different from that of Abrams or of the goat gland grafter. All four can depend upon finding valiant fighters for their respective causes, but belonging to different layers of our social strata. The Freudians, with vanity of intellect, gaze downward upon the common herd—even as did the adherents of Schelling, who gave the critical philosophy of Fichte a more objective application. Even Goethe approved of Schelling, because of his poetic renderings that closely simulated the diction of

real science. The comparison between Freud and Schelling makes extremely interesting reading.

Mrs. Eddy appealed to a somewhat similar group, but one that was deeply religious by instinct. Her religious genius may perhaps be compared historically with that of Martin Luther, but the comparison would have some abrupt differences—particularly when Luther entered a monastery because he doubted himself. Yet, Mrs. Eddy went to see Dr. William H. Lusk in regard to her arthritis.

When it comes to a question of honesty in Abrams, we should perhaps include a point in pathologic psychology. I personally knew Dr. Abrams and Dr. Cook, the Arctic explorer, at a time when both were forcefully interesting characters and, so far as I am aware, no question of intention to mislead was ever brought against them by people who knew them pretty intimately. I saw the change come over both of these men at about the same time, and it was similar in its expression in both cases. Was it pathologic mentality and were they irresponsible to a degree which may perhaps defy definition?

"Resistance-complexes" make as much trouble for Freud as malicious animal magnetism caused for Mrs. Eddy. For that matter, even God has a devil capable of thwarting His every wish, but nevertheless created by God, just as Freud created the "resistance complex" that now comes to plague him.

Although Freud and Mrs. Eddy appear to belong in parallel categories therapeutically, it would seem unlikely that anyone could embrace the creed of both of them at the same time, and yet I have two acquaintances who accomplished that feat and who would have wrapped themselves in any third fog that came along. We retain

perfectly friendly relationships because I have made it a rule in life to allow people as much egotism and vanity as I myself have. It was "up to them" to become impatient about it.

The work of many other psychologists is today being attributed to Freud very much as popular stories going the rounds used to be saddled upon Lincoln. The inferiority complex was Adler's idea, and it seems to me he has worn it quite threadbare and that his methods of observation were quite as untrustworthy as Freud's. Dewey and Durant, although belonging in separate categories, are respected and popular, a highly modern possibility. Of late, I find newspaper accounts of their being seen together in the company of Freudians, listening in on medical philosophy at meetings to which they have been invited. That makes me sit *cum arrectis auribus.*

In one of our universities, students used to have the comfort furnished by a James and a Münsterberg teaching simultaneously on opposite sides of questions, because philosophy is like history—correct only when written by one man. When Freud is attacked with sharp ridicule by competent warriors, we all like to see the flashing eye and martial bearing of his competent defenders—competent in the sense that, like bishops, they at least know their stuff.

When opinions are expressed with passion it usually means absence of secure grounds for belief, except in the presence of over-action of the thyroid gland, and that exception is highly important. The degree of expressed passion is a measure of the speaker's lack of available proof, provided that his physiological functions are normal.

In my everyday contact with people, I classify them into a ready-reference list of four M's . . . Morons, Meter-

gons, Metaphysicians, and Mean-types, the latter so named in biology as representing Nature's favorite mean or average type. Morons accept with complacent grace the limited facts that are obvious to them, making rather good use of their one talent. Metergons prefer controversy to acceptance of obvious fact. This probably represents oversecretion of thyroid hormone when the frontal lobes of the brain respond to any sort of stimulus. In comparative psychology, we find a parallel phenomenon exhibited by those members of the reptilia which vibrate the tongue rapidly in response to any sort of stimulus, benign or malign.

Metaphysicians, Freudians included, may make highly skilled use of facts that do not come into conflict with intuition, in which latter case facts may go into the scrap basket. Mean types, i. e., average types among all species in organic life, represent Nature's favorites. The gods are constantly engaged in throwing everything back to mean type. The mean type mind is what we might call the general practitioner mind.

Philosophy as a game has one advantage over science. Entrance tickets for science are costly and given only to specially trained minds while you and I may have free tickets for philosophy and pretend to belong in company with all classes of minds.

Herbert Spencer was six years ahead of Darwin on the theory of evolution, but the world looked upon the idea as belonging wholly to speculation and it was not until Darwin had assembled ponderous data by methods of science that serious attention was given to the subject by the world at large.

Anyone may have sport with speculative philosophy

just as anyone may play chess for pastime, but reduction of its moves to classified methods belongs only to the methods of science. My own most recent sport in the field of speculation concerns the nature of the relation of the organic cell to crystals in general. Anyone with an associative mind who is familiar with modern research data in electro-physics would probably not call it speculation.

Now that we know so much about the ether, I find personal satisfaction in the idea that what we call "thought" may perhaps be a peculiar demonstration belonging to the ether—something similar to the X-ray in the regard that it is not atomic but represents a rebound from atomic impression; the latter being made by the atoms of brain cells pounding upon the ether. We then arrange the rebound effects in the orderly form known as mental process, but instinct is likely enough cell memory only. Haeckel said that heredity is cell memory and that would fit in well enough with my theory because a cell in a state of flux is yet capable of making hereditary entailment which ensures the continuance of its kind in organic structure. Cell memory in its multiple form decreases with age when the building up process in the cell slackens. An aged man who forgets makes at the same time a slower general response to attacks of all kinds. He is said to become more liberal.

Brain dynamics are as easily postulated as are muscular dynamics if we assume that all organic life is a throbbing response to the electrical *vis a tergo* that has simply been loaned to us temporarily by Antecedent Mind.

Brain cells, let us say, become conscious of ethereal response to their atomic beating in the same mechanistic way that phototropism appears in certain organisms that move toward the lighted side of a dish in the laboratory.

How can the atoms of brain cells pound upon the ether unless they possess what we call life? I think of this thing known as life as being nothing more than the behavior of colloids under the influence of electrical stimulation as distinguished from the behavior of crystalloids. The latter limit their ultimate form to that of the crystal, and their division by internal strain is confined to simple cleavage.

Colloids, however, when arranged by the same laws of symmetry as those governing formation of the inorganic crystal went in times past into form as the organic cell. This "colloid crystal" goes on to division by internal strain, let us say, just as the inorganic crystal occasionally does, but instead of such simple cleavage and inorganic pause there follows progressive cleavage and organic assembly for building purposes, or else in another phase the division results in the formation of spores in a bacterium's "nest of eggs." The viruses, including bacteriophage, appear to furnish the missing link between the living and the non-living, capable of causing transmutation both ways, and they become responsible for formation of the colloid crystal as a first detail in the evolution of organic life. Viruses would appear to be emissaries of the will of the Lord if they build and bust on every planet that becomes cool enough for allowing them to go into action. How may be postulated a difference between the two kinds of internal strain as they appear in an inorganic crystal and in an "organic crystal"?

As I was idly sitting upon a Paleozoic rock and prying out some rather scrubby garnets with the aid of a broken hunting knife, a surprise appeared in a faulty crystal. This at once became more fascinating than the most perfect of diamonds. The garnet had apparently split along

lines of imperfect cleavage belonging to a cubic system, but why had it split? Was this perhaps a result of internal strain caused by intermixed elements of differing density or of conflicting surface tensions under some stress of weather? How exciting! Thrills that are constructed by art for the footlights or for fiction may throw sinkers into the soul, but in Nature the human spirit can always find a springboard.

Thus came the thought that an organic cell was arranged by the same laws of symmetry that had been operative in formation of the garnet. Might we then call the organic cell a colloid crystal? If this were to be split by internal strain would its subsequent behavior explain organic life and at the same time demonstrate a real difference and yet a close relationship between crystalloids and colloids? The idea was published in 1915 and then forgotten because I had more important first-hand duties at that time.

Recently I asked Dr. Wilder D. Bancroft, the biochemist, if any one else had made that comparison. In a letter dated February 14, 1933, Dr. Bancroft replied in substance: "I think that you must have been the first to call an organic cell a colloid crystal, but I am not as yet convinced of the desirability of the phrase. If the cell is pinched in two in the course of mitosis that would not be splitting from internal strain, it would be more of a guillotine process."

Being fond of argument, my reply was as follows: "Is it against the law to beat the devil around the bush? Let us admit that in cell mitosis the cell is pinched in two by a higher surface tension at the equator where it splits. Does it give way because of strain directed inwards because of application of force at that point, or is my question a

quibble? Is the higher surface tension at the equator an electrical phenomenon dependent upon unequal distribution of ions upon both sides of a permeable cell membrane? Does the cell as an electrolyte respond by a partial disintegration at the equator rather than by a flux of the whole mass? Does this question include flux density, i. e., the number of lines per force unit area of cross-section normal to the lines?"

The response was of the sort to be anticipated from a cautious scientist and in effect was this: "We do not know at all what causes the high surface tension at the equator of a dividing cell. In fact we could probably get at the same result if we postulate a high surface tension on the outside at the equator or a low surface tension on the inside. There is no objection to your theory that it is due to electrical stimuli acting somewhere excepting for the danger that your words may be taken to mean more than a personal surmise on an hypothesis which we are not prepared to confirm or disprove within a reasonable time."

In this connection the press of July 15, 1934, carried the announcement from the Pennsylvania State College that the source of the crystal—primary structural units of Nature—has been found in minute electrical forces. This belongs with Crile's theory that all organic processes are electrical in their nature. If both organic and inorganic processes are electrical in their nature, the difference between life and no life becomes narrower every day. If the crab contains within its economy methods for making lime, an inorganic substance, for its shell, and for making urea, an organic substance, which can now be made synthetically, organic life and inorganic life are within sight of each other—both being merely incidents in the history of a planet or planets.

CHAPTER XIX

SEX AND BIRTH CONTROL

SEX Life has been confused with ethics and we have tried to run the two together, but the doctor learns early in practice that sex is fundamentally physical; that it stands quite apart from ethics which are constructed for the common good without regard for natural physical interferences. The doctor regards sex-ethics as a sort of Eighteenth Amendment to the physical constitution, and treats it according to physical limitations. We doctors know that people for the most part act in a rather natural way according to their inclination in sex matters, although making a bow and taking off their hats in the presence of an adopted code.

In Mexico when the keeper of a brothel prays to the Virgin for a fresh lot of girls, and, in Thibet, when the Grand Lama who is a celibate rewards courtiers who bring him new concubines, there is no disturbance in the elaborate ethical systems of these countries.

In the question of double standard in sex morality a dynamic physiological factor subtends all others. In one sex there are two tortuous and torturous distended vesicles causing actual and immediate discomfort, and in the other sex there's nothing of the sort. In the male, they become distended without man's wish or will. Under such circumstances the negro commits rape when returning

from a hanging for rape, a stag in the road confronts an automobile with lowered antlers, and the curate explains to the understanding Board that he must have been in a trance. Can women understand this? Not if Herbert Spencer is correct when he says that we judge from personal experience only. If women had such personal experience, they would not encourage dressmakers to strive at accentuating what is supposed to be concealed.

Place a stick of dynamite upon a platter and apply a match. The substance burns evenly with a pleasant flame. Now turn the platter over, hiding the dynamite and confining the heat. In a moment the platter cracks and this detonates the explosive with disastrous effects. That is sex! When Theology put it under a platter while calling man a special creation, the detonation shook civilization to its foundations—from village chatter to the policies of empires. In some later cultural period sex will be allowed to burn evenly with a pleasant flame and another Freud will have to seek some other cause for human troubles.

What will a new cultural period do with the sexual instinct? At present it has been taken in charge by Sociology and placed in a cage that was constructed by Theology. The instinct of gregariousness has led men into large urban groups in which they decay and cease to propagate in a sustaining way for our species. Sexual instinct in confinement gives us late marriage, vicarious expression in loathsome realistic literature—and serious social accident when it escapes from the cage, as it often does after nightfall. Sexual instinct in the coming economic era may be given a freedom that will allow tremendous utilization of the strength of youth and at the same time cause little interference with the responsibilities of the marriage contract. Early marriages may be guaranteed economic secu-

rity by the State. The idea of such a change in social method is a dream, but not a Freudian one, because wholesomeness in the new adjustment would offset the menace offered by sex starvation.

Dr. Popenoe, analyzing 2600 questionnaires submitted to married college graduates, found that a very large proportion of their marriages were happy ones, because education prepared these people for better control of adjustments between personalities. Unhappy marriages were placed in seven groups in the following order: the mentally diseased, the very poor, the very rich, those who cultivate temperament in emotional occupations, the naturally delinquent who in other ways show inability to meet social requirements, couples differing widely in race, religion or culture, and lastly, people of good intentions who are ignorant of the essentials of married life. William McAndrew, former superintendent of the schools of Chicago, said that training for marriage and parenthood should be made part of the regular high-school course of study. Every family doctor will say "Amen" to this.

The most important business of the world, that of marriage and parenthood, has so far been left largely to Topsy's teacher. The stockbreeder knows very well what will happen if he adds more and more defective stock to his herds every year. He finally gets down to a scrub herd. That is precisely what civilized people are doing to human herds. They have done it in past cultural periods and have ended in destruction. Our own present cultural period will probably fare in like manner.

Arguing for birth control from an over-population and food supply angle or from a religious angle is factitious and misleading. The subject belongs wholly to the fields of economics, of health, and of education.

There is a group of writers who tell us with straight faces that birth control belongs with the question of impending over-population. I accuse these so-called popular writers and their publishers of having a sordid motive. They are not attacking the problem comprehensively on its merits. When selling ideas for money they exploit a certain unfortunate trait of mankind. The human mind craves disaster very much as the human stomach craves salt in its diet. Sales of books and magazines freely follow publication of fears.

My accusation is based upon three points:

Birth control writers and their publishers know or should know that if the population of the United States were to be doubled within the next sixty years as predicted, and the present acreage of tilled land cut in half, people could then live better and with greater variety of food than they enjoy today. This relates to the full utilization of tree crops and of certain little-used animals and fish.

If the last beef steer were to disappear this year, housekeepers could have cheaper meat and more of it than ever before. Incidentally, they would have more and cheaper leather for the arts and utilities.

Regulation of population is an automatic biologic phenomenon. Progeny rate drops rapidly when any variety of plant or animal including man is carried toward cultural limitations, and the initial fund of protoplasmic energy that has been bestowed upon a given variety becomes lessened. With the human species the phenomenon is exemplified in what I have called the apaedion index to the decline of nations, i. e., a falling birth rate. Animal breeders know all about this out of costly practical experience with failing stocks. In plant life Professor Ray-

mond Pearl has given a simple demonstration of the phenomenon by cultivating varieties of yeast plants until they "ran out," as the popular expression goes.

Discussion of the pros and cons of birth control is a form of amusement enjoyed in a make-believe world. Profound political effects are being brought about by birth control. Because it is now being applied in fact by the choice elements of all civilized countries, it trims out the most highly cultivated people and allows barbarians to win out in breeding. There comes to mind an occasion when I was looking for a harbor on a brutal northern coast in the midst of a great storm with night coming on. At the bottom of a narrow rock-bound bay we espied the cabin of a livyere and the masts of his boat. Into his harbor we rode on the swell of a high rolling sea. After we came about and cast anchor he called out to us, "Ye cawn't come in yer with thet schooner."

"Why not?"

" 'Cause there ain't water enough on the rock bar. How much ye draw?"

"About seven feet."

"Ye cawn't come in."

"But we are in!"

That's the way in which we manage the birth control idea. If the livyere had said that we probably couldn't ever get out again he would have passed for an intelligent man.

Advocates upon both sides of the birth control question will be loudly engaged in special pleading with contempt for judicial procedure. The Russian meantime will sit well balanced upon his fence—grimly amused and cynical he will say that the Church objects to birth control

because it requires so many morons for its support. Between conflicting ideas Nature largely takes her course in population matters and she will eventually win as the student of natural history well knows. Man hovers between lost instincts and imperfectly acquired methods in reasoning. He comes to a brook and jumps almost across it and Nature then comes along and extends a helping hand.

In 1928 I contributed an article to the "Open Forum on Birth Control" in the *New York Medical Journal and Record,* stating that food supply should not enter into the birth control question. Mrs. Sanger wrote me that she had been in touch with many scientists in Europe and that she felt it safe to say that of the three hundred of them who assembled in Geneva to discuss the subject of population, not one denied that there is a population problem. She asked me to write out my views for the *Birth Control Review.* My letter in reply was as follows:

There is indeed a population problem but it is not to be approached from the angle of Birth Control. Control of the flocking instinct is more to the point. It should constitute the next great movement by sociology.

They tell the story of the German professor who read a paper on the subject of valuable metals that are found in two belts around the world. He gave a geological explanation. An anthropologist who arose to discuss the paper pointed out that the subject was not geological but anthropological; i. e., the belts around the world containing the valuable metals lay in temperate zones inhabited by people of active temperament, who found things.

The population question, in a similar way, is social rather than agricultural. The civilized world has found it best to repress one primal instinct and has developed the idea of sexual control. There remains another primal instinct to be brought under control. Man, as a social primate with gregarious instinct, has a tendency to collect in large flocks. The next step for some cultural period of the future will consist in exerting control over his primal flocking instinct in very much the same spirit as the present cultural period has exerted control over the

sexual instinct. Run a hay fork into the heaped up urban populations of India and China; pitch-fork the people so far into the jungle that tigers will have to dodge to get out of their way, and the people will then dig in and raise plenty of food in the way of soy, fruit, and nuts, dasheen, rabbits and poultry.

Do not for a moment believe that my attitude is inimical toward Birth Control. It is one of the essential movements belonging to our cultural period for the control of the feeble minded, the insane, the poverty-stricken and the diseased. I have been fighting for you and your cause. For this reason—I wish to see an elimination of the agricultural factor which agricultural experts know to be false.

When advocates of birth control introduce the argument that we are to dispose of the laughter of merry children in favor of conservation of the bean supply they are playing a fly on the music score. Ever since the days of Malthus, food supply for the world has increased in quantity and in variety to such an extent that we now raise too much. It makes political complications; and the process will continue for as many centuries as we can see ahead. The more children that we can raise among decent surroundings the more minds will there be for settling the food supply question on a rational basis.

I am just back from a motor trip through Florida and the South where we often rode for hours through unoccupied land that would support several people to the acre under conditions of intensive cultivation, or by means of subsoil crops, that is, tree crops which require little cultivation and which do not exhaust the soil perceptibly.

Personally knowing and admiring Mrs. Sanger as I do, my conviction is that inclusion of the over-population ideas among her arguments for birth control was absolutely honest in its intention. I wish to see a full degree of success for her movement in its genuine bearings.

The chief preventive for over-population is a limitation apparently provided by nature. Aside from the sexual caprice, aversion, and perversion that goes with high cultural development there appears to be another natural self-limitation to over-population. This is based upon the

observation of Beebe in the Galapagos Islands. He found that animals and birds run out of potential energy and become sterile in the midst of food and warmth, and absence of enemies. Sir Oliver Lodge said that when a planet is formed it carries an initial charge of energy which proceeds to run down like a clock. All organic life shares in the fundamental process in kind. What does running out of energy mean specifically? Crile says that all organic functions are colloid functions conducted under electrical processes. When the energy is insufficient for conducting division of the cell properly for developing male and female organisms when the zygote splits for organic destinies of its parts, we then have among humans homosexuals, so that a cultural period comes to an end in Nietzsche's eternal recurrence of Sodom and Gomorrah—destroyed by gunfire and improvements upon brimstone.

This is apparently what is happening in some of the older so-called Aryan civilizations today. Is there hope of retaining the longer stay of otherwise remarkable groups of peoples in the presence of the failure of the zygote of the cell to split properly to keep the sexes distinct? Probably, if we note a very ancient plan of keeping the Arabian horse up to the high standard of excellence—outbreeding. Desirable types were bred and when any one type, the barb for example, began to degenerate, the outbreeders were put to use. The Japanese, noting the object lesson of the horse, maintained the family of the Mikado by having semi-royal outbreeders who were brought in from time to time—the way for establishing families today. There seems to be only one hope of halting the degeneracy of Aryan stocks in Germany and other coun-

tries—that of employing the Semitic and other superior elements in outbreeder capacity. Without outbreeders there seems to be little hope of maintaining desirable cultural or racial groups.

CHAPTER XX

PROFESSIONAL JEALOUSIES

ACCORDING to my creed, a man should so live that one group of people will love him and another group will want to get at him to injure him. The more nearly equal these two groups, the greater the triumph in putting life through its paces. If one is ineffective in this world, he lives in peace but dies a dud. Criticism based upon well-planned analysis of the methods and motives of one's colleagues, is essential for greatest progress. Only in the open medical society meeting and in the reputable medical journal, do antagonists have fair opportunity for attack and defense, but never in private conversation.

I have spoken very freely in open society meetings and in medical journals, but I have made it a matter of principle never to be critical in private conversation. I remember, when a child, once hearing my father speak critically of someone. It was unusual for him to do that. We all looked up in surprise. My mother, in a gentle reproving way said, "Be careful, the children might hear." Our New England parents considered it highly vulgar to speak critically or even carelessly of anyone who was not present to defend himself. Tolstoy, in the opening pages of *Resurrection,* writes: "Happy were the plants, and the birds, and the insects, and the children. But the people—

the big, the grown people—did not stop cheating and tormenting themselves and each other."

When traveling about to give addresses in distant parts of the country, I noted a distinct difference in professional friendliness in different localities. In some of the Western towns there was a breezy criticism and an air of give-and-take which kept the atmosphere invigorating. In one such city I had an audience of five hundred and fifty doctors when presenting a subject of new interest, but on presenting the same subject a month later in a somewhat smaller New England town, there were only eighteen doctors present, and some of them spoke disparagingly of others about whose work I asked. In the first instance, one gains the impression that they are all pretty good doctors, well equipped and useful to their patients. In the other, one feels that there are certain elements of disturbance which lead men to work against one another, and that the public could have little confidence in the physicians of that town.

I have often been very much distressed by the way in which physicians speak of each other. Some of their remarks do not accord at all with my estimate of their attainments, characters, and habits of life. Perhaps their inimical attitude is chiefly due to "technical wrath" or to a commendable professional idealism which leads them to demand high standards of all their colleagues.

Dr. Brown does not approve of Dr. White because Dr. White believes that allergy is a protective phenomenon, and Dr. Brown does not hesitate to express his disapproval of the views of Dr. White on that subject in the presence of a layman. This is a purely technical issue, a moot scientific point, but the layman does not realize this. He obtains the impression that if a man of Dr. Brown's

high position disapproves of Dr. White's beliefs he must be cautious about employing the latter in a case of mumps. He may and often does employ a charlatan who denounces both Dr. Brown and Dr. White as belonging to a medical trust. Specialized wrath among doctors is plain social wrath so far as a layman knows anything about it.

Judges upon the Supreme Court Bench cannot always agree upon points in law. We claim equal right to register a dissenting opinion at any time upon a medical point but we must reserve our controversies for our own halls. One day three or four of us were at dinner with a Chinaman who had amassed wealth from Americans. We asked if he had become a Christian. He replied:

"Guess not yet!"

"Why not?"

"Mefdis tell me come their side. Piscopal and Presterium no good. Presterium say just same. Mefdis and Piscopal no good. Piscopal say Mefdis and Presterium no good. Guess they all ought to know!"

A member of a legislative committee told me that the doctors in his home town were quite as critical of each other as they were of faddist sectarians, which made it difficult for him to know where to place his sympathies.

Petty jealousies in the medical profession often interfere with securing endowments for the development of hospitals. Public-spirited laymen have many a time told me that local jealousies among doctors are such that they are obliged to leave the whole lot of them alone. I have tried to tell laymen that such jealousies are of good origin, each doctor hoping to be more useful to the public than any other one. I have tried to persuade them to recognize men who are respected in the profession, and to assist them in accomplishing things of consequence and devel-

oping their hospitals. Not infrequently, laymen have been surprised at learning that some doctor in their town is well known in New York or has a national or international reputation.

Chaucer defines a gentleman as one "who doeth all the gentil things he can." There is an old saying that "the measure of a woman is her measure of other women." The same thing is true of professional men. If I ask a painter about the work of another painter, or ask a musician about another musician, I am instantly given a measure of the one with whom I am speaking. Astronomers and geologists have a constant tendency to hold colleagues in great respect because their questions are whisked as rapidly as possible away from belief and placed upon a classifiable basis of fact. The same thing is occurring in medicine. The doctor's attitude toward his colleagues is becoming as sound as his belief in science.

CHAPTER XXI

FEE-SPLITTING

ONE of the greatest changes in medicine during the past fifty years has been that relating to secret division of fees. It seems to be a parasite of specialism. Because a specialist concentrates upon the more material aspects of cases, he may naturally lower his level of compassion. A sufferer becomes a case—"a primrose on the river's brim." Because of this, a certain element in our profession has lost sight of the sentimental and esthetic motives and lowered its standards.

For many years after I entered the medical profession the family physician was a noble protector of his charges, standing guard over their every interest. There was many a "grand old man" who was recognized as just that. When there was need for employing the services of a specialist he generally persuaded the specialist to accept a smaller fee than was really deserved. He would say to us surgeons, "this is a friend of mine and I wish you would let him off easy." Almost every patient was a friend under the old régime, and consequently most of the well-to-do people were not paying anything like what they should have paid for skilled services.

Many and many a time when I have been in consultation with physicians, we have decided that the services of some particular specialist would be required. The almost

inevitable inquiry of the patient or the family was "Is he very expensive?" With equal promptness the family doctor used to say to his patient, "Yes, but I know him very well and will ask him to make a light charge in your case." This was almost a fixed rule of procedure before the days when we began to hear of secret division of fees.

Then came a change. Instead of a doctor regularly asking the specialist to "let his patient off easy," the low-grade ones turned about and allowed the payment of larger fees, the larger the better, because their own share of the proceeds would be in proportion. I am not speaking of the first-rate men in the profession. Their recommendation of a specialist who commands large fees means that they have chosen highest authority in single-hearted interest for the welfare of a patient. Our masters of surgery are largely men of such quality and character that secret division of fees is out of the question with them. Such is still the case and will so continue, but hundreds of surgical cases are taken to men of inferior character and skill by doctors who are living up to inferior standards of their own.

I first endeavored to expose the degrading practice of fee-splitting in a letter to the *Medical Record*. Dr. George F. Shrady, the editor, who had always been paternally friendly and frank with me, said "the fee-splitter is a stinker to be left alone," and warned me that publication of the letter would sooner or later get to the ears of the public and besmirch the entire profession. It would turn against me not only the fee-splitters, but also the very best men in medicine.

He was right. Men of the very highest character and standing referred to me as being the kind of bird that would soil its own nest. From the other direction came

attacks by the fee-splitters themselves, but not openly as had been done by the honorable men. Fee-splitters' methods were underhanded, in keeping with their chosen financial methods. I was being ground between upper and nether millstones; both sides had it "in for me."

Almost any destructive social movement may have its compensations. Charles Lamb wrote of roast pig found in a burned house. Fee-splitting had one such compensation. Hundreds and thousands of cases that would be actually benefited by surgery, but had been neglected, were hunted up by fee-splitters and marched off to some kind of surgeon. The commercial motive made the public "surgery conscious."

Men of high standing in our profession hold that secret division of fees is betrayal of trust; that the confidence a patient places in his doctor must not become a commodity for sale. In every community there are laymen who know the difference between types of professional men, but the public as a whole is not discerning.

In 1914 Hendrick published a study of the fee-splitting situation, and since that time the medical profession has conducted a vigorous reform similar to that on the part of the Bar Association against "ambulance chasing." A liberal profession is by nature a replica of an entire social system and consequently always in danger of slipping into holes and getting drowned. Somebody must stand by to lift it out. When surgery slipped into a fee-splitting hole, the American College of Surgeons pulled it out.

When the College of Surgeons was founded in Washington, its president declared that no one should be admitted who was suspected of being guilty of "the pernicious practice of fee-splitting." His declaration was

received with universal and enthusiastic applause, and the Committee on Credentials solicited the sworn support of each Fellow. The pledge read as follows:

> I hereby promise upon my honor as a gentleman that I will not, so long as I am a Fellow of the American College of Surgeons, practice division of fees in any form; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate any one referring patients to me; nor will I utilize any man as an assistant, as a subterfuge for this purpose.

In 1911, a committee of the New York Academy of Medicine investigated fee-splitting. It reported that the practice not only occurred between physicians and specialists, but that individuals, firms and corporations engaged in the manufacture or sale of instruments, trusses, lamps and other kinds of appliances and equipment had made a common practice of granting commissions or rebates to physicians if they would advise their patients to use such articles. Similar rebates and commissions were being paid to physicians by chemical, analytical, pathological and radiographic laboratories. Oculists were granting commissions to physicians for spectacles and lenses, and druggists gave rebates on patent medicine sales, if a physician would recommend them to his patients.

The Academy passed a resolution stating that the physician who accepted such rebates or commissions without disclosing the fact to his patient was guilty of "fraud and deceit," that such practices were both unprofessional and unethical, and that proof thereof should be grounds for demanding the member's resignation, and, if necessary, for expelling him.

FEE-SPLITTING

Ophthalmologists were the first exclusive specialists and the first to suffer from breach of ethics. Certain ones among them thoughtlessly accepted commissions from manufacturers of eye glasses. This unfortunate little defect led Upton Sinclair to go before a legislative committee at Albany with his pockets full of receipts for such commission money. He begged me to look over the names attached to them. I refused, preferring to omit the personal element. Sinclair was at that time supporting harmful medical fad bills, including an undesirable optometry bill and a private project of his own. He openly declared that "doctors were in business for the money to be gotten out of their business."

Sinclair deeply impressed legislators with the telltale receipts. These receipts had been made available for his destructive purpose by unwitting men, some of whom possessed good professional standing, but lacked dignity. I knew that eye specialists of highest quality returned commission money to their patients or deducted the amount from their bills, but the legislative committee was not aware of that. The result was that the Legislature granted a large part of the optometrists' demands.

During the "fee-splitting" controversy, I attended a meeting of medical social radicals, at which one physician declared that a doctor engaged in lodge practice with an average fee of about five cents per visit could not make a living unless he called "prominent doctors" into consultation and split the fee with them. He said he had done this himself, that there should be no nonsense about it; that the Golden Rule was childish and we had outgrown it.

Every responsible surgeon has patients sent to him all ready for operation. In many of these instances he decides that operation may be avoided or may be undesir-

able. If he were to operate upon these patients, he could retire on the proceeds.

When Dr. Harvey W. Wiley was fighting for pure food laws, he told me of an offer of more than one hundred thousand dollars that had been made to him if he would allow a certain product to go into the market. This was only one of many opportunities for feathering the nest that came to him many times in one way or another, during the fight. Even his superior officer, the Secretary of Agriculture, forbade him to make public reference to a certain product which Wiley considered to be harmful to health. He was recommended for "condign punishment" by the Attorney General, but exonerated by President Taft. As head of the Bureau of Chemistry at Washington he was later supplanted in his functions by an advisory board that had no authority under the Law. When he was frustrated in his official work, he resigned and carried on as a public servant by way of lectures and publications.

Wiley fought not only impure food and drugs but also misleading labels. This work has now been enlarged and extended by a committee of the American Medical Association. It has backing of such power that today there are few who can appreciate what was done almost single-handed by this one man. "Special privilege," today, must face organized medicine.

In connection with the very large number of men entering medicine today it must be taken into account that a certain percentage come from bad environment and are absolutely certain to forge weak links in our chain of behavior. Medicine is not alone in this menace. It extends to all professions and businesses.

CHAPTER XXII

THE SURGEON'S FEE

DO SURGEONS get too much for their work? It all depends on who the surgeon is and who the patient is and what is done. And it is probably safe to say that only the incompetent surgeon is overpaid. The man who pays a large fee to a surgeon of good standing for a particularly well done operation is taking out accident insurance, if not life insurance.

There is, however, one solid argument in favor of reducing fees. Dr. G. F. Chandler, chairman of the Committee on Medical Economics of the Medical Society of the State of New York, declared in 1930 that the large fees charged by surgeons of good standing was "commercial bait" tempting many incompetent men to try a hand in the field, and that the only way to prevent their entrance would be to reduce fees. In a letter to me, dated September 30, 1930, Dr. Chandler stated that he thought doctors were prone to exaggerate their ability; that he personally, always thought surgery the easiest branch of medicine and that that was the reason he had taken it up. "For I didn't think I had brains enough to be a real internist," he wrote.

Dr. Chandler was also opposed to charging according to a patient's income. He felt that the patient who takes the finest room in a hospital should not correspondingly

be asked to pay a larger fee for surgical service. He pointed out that a railroad does not charge a bigger fare just because a passenger can afford to ride in a compartment or drawing-room. I replied to this letter declaring that I felt surgeons only had the easiest branch of medicine when they were temperamentally fitted for making it easy and that that is a matter belonging to every other specialty—that the man who takes a compartment in a railroad train is given assurance that his car will remain upon the track if the other cars run off. He is insured against accident. If a surgeon can acquire a death rate of only two per cent in a class of operations that commonly gives a fifteen per cent death rate according to published hospital reports, it is more than a matter of accident insurance. It becomes life insurance.

When a patient pays a surgeon, he is paying for that surgeon's efficiency and proficiency. One of my friends told me of witnessing a breast amputation for cancer by a doctor who had postponed operation for months by trying out temporizing treatment. He amputated the breast but did not take out the pectoral muscle or axillary glands because he did not know how. His work was "easily done" but it served only to hasten death.

A young woman who was a favorite in the younger set in New York developed a small branchial cleft cyst on a fair neck, and was advised to go to the hospital to have it removed. A doctor making a social call pooh-poohed the idea of any such ceremony, said that he would run over next day and take it out with local anesthesia—right at home. He did not know that the sheath of a branchial cyst is always continuous with that of the large blood vessels of the neck. Drawing the little cyst forward with dainty forceps he then snipped it away at the base which

included half an inch of the jugular vein. The doctor lost his nerve and sank upon a sofa with his head between his hands while the young woman—an only child—died in two minutes on the Persian rug on the floor. Both of these operations were what you would call "easy work." That is why I say that this matter of fees depends largely upon who is doing the work. An internist may give a patient medicine to dissolve gallstones, not knowing that they cannot even be dissolved in a glass bowl, excepting with highly destructive chemicals. Or he may "easily" give a dose of stimulant that will instantly cause heart block in a case of fibrillation. One of my most highly educated assistants—a man of social grace, fine presence, and charming manner—used a razor like a hoe when preparing a patient for operation. I predicted that he would not succeed as a surgeon because of lack of mechanical soul. Ten years later he was selling bonds. More than one junior assistant when examining an abscess has made thorough search for fluctuation—the patient wincing and cringing at every push and all of those brutal touches unnecessary. A surgeon of fine feeling and professional compassion would determine with a single gentle and light touch all that he really needed to know in such a case. One of my assistants who took first rank in examinations would tie granny knots unless closely watched. He could not make the square knot a matter of second nature. You know just about where he would bring up as a surgeon.

Surgery is not "easy." In other words, it must all be "in the man" if he is to belong to our special field. Otherwise, he gets out, but unfortunately before he goes, sends out some of his patients. People willingly pay more for a Corot or an Inness than they do for a "real nice painting." If one surgeon with his finger can remove a tonsil

easily and perfectly and with a minimum degree of injury to tissues, while another has to buy all of the expensive special instruments and leave parts of the tonsil behind (but not always leaving pillars of the fauces all behind), that surgeon is justified in charging a larger fee. Sometimes these fellows who cannot do a good job charge as high as a thousand dollars for the removal of tonsils, while a man who can do it correctly feels that it is robbery to charge even one hundred for "anything so easy." If I had to, I would pay a good surgeon a thousand dollars very promptly rather than employ an incompetent one at one hundred dollars.

The surgeon is perfectly free to do what he likes about charges. . . . Sometimes he charges nothing at all, sometimes he reduces his fee to a minimum.

A surgeon brings me a case of stone in the ureter lodged part way down according to the radiograph. He has operated in similar cases himself many times and owns all of the up-to-date instruments, but the patient is a personal friend and he wants to have someone else do the work. A buttonhole quickly made allows my finger to go into the peritoneal cavity and press the stone against the flank. A short incision into the flank from the outside is made with scissors and their points are felt to be right at the stone. One snip opens the ureter, the stone slips between the points of the scissors and by good luck stays there and is withdrawn. A small drainage tube is inserted in the flank and the abdominal incision closed. The whole operative procedure takes only a few minutes. The only instruments employed are one pair of scissors and one Hagedorn needle. The doctor says that his patient is a man in good circumstances but not prepared to pay what I should charge for that operation. My reply is, "He is

a friend of yours. You are a friend of mine. It was a very easy operation because the patient was of the right slenderness to allow it and because the stone stuck between the points of the scissors. My results often depend upon luck rather than upon skill. I would rather not make any charge at all for your friend. Just tell him it is a matter of courtesy all around because the fun of doing the operation is payment enough for me."

Not long ago the doctors at an out-of-town hospital asked me to go there to do a goiter operation. They had not done that sort of work but had seen it distantly at clinics and wanted an object lesson in technic right at hand. If I had known that at the time, a classical type of operation would have been chosen. We knew from preliminary tests that the case was one of hypertrophy with small cysts. The parenchyma was found to be fragile so I picked up a piece of gauze, stretched it over my finger and turned out all of each lobe that seemed to be proper for removal—leaving the posterior capsule and parathyroids intact—all done in a very few minutes. One member of the staff said, "We didn't know it was as easy as all that or we would have done a lot of goiter operations." Lord knows what they ran into later. It had been simply a matter of my choosing a simple procedure in a suitable case. A fee of about one hundred dollars would be about right for that sort of goiter case, but I have done goiter operations that would merit a charge of several thousand dollars for anyone who could pay it as easily as he could pay the crew of his yacht.

I was called in one day to operate upon the young daughter of a well-known merchant for acute appendicitis, with peritonitis. My bill for twenty-five hundred

dollars was sent out on the first of the month. The father came in next day and this was the conversation:

"I am very grateful for your work. If it was a matter of gratitude only I would pay you fifty thousand dollars, but this bill comes at a time when my expenses are enormous and I wish you would reduce it."

"All right. Give me half of it. I cannot talk business in a situation when my only thought was to pull your beautiful young daughter out of danger."

"Well, Doctor, it might take me some time to pay even half of your bill. And something might happen before then. Now I have five hundred dollars in cash in my pocket. If you would take that and call it square everybody would be pleased all around."

"All right! Any talk of business in such a case gives me nausea."

So I took the five hundred dollars. An hour later in the street I met the doctor who had called me in. Said he: "Oh, by the way—Mr. L. came into my office this morning and asked if I would not use my influence to get you to reduce his bill to fifteen hundred dollars. I told him it was a shame to ask that and he must settle the matter with you. He did not really need to have his bill reduced at all; it was only a matter of habit with him—an item of profit in the day's business."

How shall one make charges for professional service when working for relatives or for servants?

When working for relatives I think it best to make an average charge of the sort one would make for anybody else. This relieves them from feelings of obligation that are always a nuisance. Relatives often go to a physician in the family for two reasons: often because they think his feelings would be hurt if they were to choose anyone else,

sometimes because the prophet is really a man with honor in his own country. In regard to servants in a family, we can afford to let them off with a trifling charge. It is our privilege to render service in this way and people understand that at least.

It is very difficult to charge for work if a patient dies, even though the skill employed has been of high degree, the judgment correct, and the responsibility much greater than it would have been in a more hopeful case. Nevertheless one feels hesitation about sending a full bill to an estate for services rendered to a departed individual.

I recall only one instance in which advantage was taken of free service. An ovarian tumor was removed for the daughter of a man of large means. The son, who was a physician, asked that the bill be sent to him. I replied that if he was in the habit of paying his sister's bills there would be no bill. There was no direct reply but instead came a present of a silver pitcher in a Tiffany box. While far from being a connoisseur of works of art, the model of the pitcher did not seem to me quite restrained enough, or at least there was a certain something about the design which led me as an ordinary observer to ask the Tiffany people about it. They replied with some warmth that it was not one of their models and were interested to know how one of their boxes had been obtained for it. I returned the pitcher and billed the father for a thousand dollars, which he paid without further question. My attitude doubtless caused displeasure, but I felt that the situation needed to be straightened out a bit.

I would rather have one of my old dispensary Jewish clientele pay a small fee after argument, but with genuine gratitude, than have some man of wealth believe that I have made an overcharge, taking advantage of his posi-

tion. Both sorts of patients are wholly excusable, the first because of temperament and survival of Oriental habit, the other because men of wealth are so perpetually the targets for exploitation that self-protection becomes automatic in any off-hand transaction. I know the need for this attitude, because in some ill-informed quarters I have been taken for a man of wealth myself, and have learned the lesson.

A number of Jewish patients have been among the most faithful of my adherents ever since early days at the dispensary. After my work became wholly surgical they came in to ask advice about "medical doctors," obviously hoping in their hearts that in their particular cases my decision to accept no more medical cases might be temporarily suspended. When there was surgical work to be done, they would beat me down on charges and employ amusingly plausible methods for escaping from full fees, but I have for these loyal friends a peculiar affection. When the time comes for my departure there will be no more sincere mourners than some of my old Jewish clientele. I hate funerals, and would not even attend my own if it could be avoided, but it is well for every man to stop once in a while to think of what sort of a collection of mourners he is training for his final event.

Some of my former dispensary patients have remained poor and others have prospered hugely. It is this follow-through in the lives of his patients that brings so much of inspiration into the life of a doctor. A man who became one of the most famous millionaires in this country could not pay a bill of fifty dollars until three months after I had cared for a member of his family in the Nineties, but he had the courtesy to express regret at the delay several times during the interval. He never "let things go" or

failed to reply when the monthly statement was sent to him. It was doubtless that responsible trait in his character which business associates perceived and appreciated.

Sometimes a young man with a growing business is getting on safely with the help of a careful and loving wife. Two or three children make the home one of joy. A single case of severe illness in the family would almost "wipe them off the map." If he has to borrow money from relatives in order to pay doctors' bills his fine spirit of independence is crushed. Here is where we have the privilege of putting a small account on the books and letting it stand for a long time.

There came a note one day from a prospective patient saying that another surgeon had informed him that my tentatively proposed fee was pretty large and he would be quite willing to do the work for much less. My secretary laughed and asked me for the fifty cents she had loaned me for luncheon. I would have been glad to have charged the patient fifteen dollars instead of the fifteen hundred dollars that had been proposed for the operation had he simply made that request and given a valid reason.

At one time a tale was current in the profession to the effect that one of the most famous of the older physicians in Chicago charged one dollar per visit in his office while a younger physician a short distance away on the same street, charged twenty dollars per visit in his office. It was said that patients would often go from one office to the other, paying the respective fees to both physicians without any question, in order to obtain the opinions of both of these high authorities.

There is often some element of truth in amusing stories that go the rounds about all of us, and I wrote the younger doctor to find out about this because of its bearing upon

an important question. The essential part of his reply, dated December 3, 1930, is as follows:

> What you write concerning Dr. X. and his office charge of one dollar per visit is true and it is also true that in the Eighties of the last century I charged larger fees than he. Usually, however, my fee was five dollars a visit and very rarely as much as twenty-five dollars for a thorough overhauling on the first visit.
>
> Some patients who came to me had consulted Dr. X. When I made a charge of five dollars or more, some of them would protest that he charged only one dollar while I charged five, although I was a beginner in the practice of medicine. My reply to these patients was, "You came to me voluntarily and probably for some good reason. I charged what I think my services are worth and if you are dissatisfied you are at liberty to return to Dr. X."
>
> Furthermore, he was one of the best friends I ever had and when I told him of the protest of patients to my fees he was greatly amused.

A lawyer's fee is graded according to the value of property, liberty, or life which is in jeopardy. The same thing should belong to medicine in principle.

Why should the Mayos, for example, not make charges like those of corporation lawyers for their services? The Mayos now have to divide up their work as do captains of industry among heads of departments and a large corps of assistants. All of these are chosen upon a basis of proved efficiency as in a business corporation, yet the professional spirit stands first at that clinic.

If a man's whole estate is in jeopardy and a lawyer rescues it after much work and trouble, his fee is, say, twenty-five thousand dollars; the man will gladly pay that amount. The same man's whole estate is in jeopardy again, a strangulated hernia indicates that he is quickly to be deprived of the use of his property but a doctor saves estate and life for him after a few minutes of work which cost

as many years of time and trouble in developing skill as the lawyer expended in preparing himself for skillfully saving nothing but the estate.

The business man cannot easily understand the nature of the charge for special work by a surgeon because personal service does not follow laws of trade. The public is convinced that we have a sliding scale. I have none. If a certain operation has intrinsic value of many thousands of dollars because of the responsibility, knowledge and skill required for successful performance of the work, that number of thousands of dollars is the charge that should be made. If the patient, however, can pay only five hundred dollars and with deprivation at that, my price for the operation is still several thousand dollars but my charge is different from my price. One hundred dollars is the charge and the patient is made a present of the difference between one hundred dollars and the real price of several thousand dollars. That is our cherished privilege.

The fact that property is instinctively held to be of greater value than human life is demonstrated in a curious way by people who do not intend to pay their bills. Take, for example, a case of chronically recurring headache. The expense of various tests, examinations, and consultations is large because so many experts are commonly required if that headache is really to be cured. A man will very often hesitate about going to all of this expense for himself or for a member of his family and women are famously economical in relation to doctors' bills which so often interfere with the household budget. People of the sort who do not intend to pay their bills, however, will send for the entire list of experts in the most lavish way in a case of this sort. Hotel keepers, tailors, and dressmakers

know whom I mean. My point is—property is held to be more valuable than health by the really good and honest citizens who pay their bills.

Any first-rate physician requires dignified fees. His responsibilities are great, and in order to maintain a position in accordance with such responsibilities and to manage the machinery essential for a high degree of usefulness, he must be able to command all of the expensive equipment belonging to the profession. A physician or surgeon with an income of $100,000 per year can use nearly all of it in various features of his professional life. The best doctors require little for personal needs.

It did not occur to me to keep an accurate account of income until some three months after a year of practice, but for that first fifteen months I should estimate the total amount to have been about $500. The next year it was $840., the year after that $1,490., then $2,041., $2,508., $3,317., $4,187. It was not until the year 1897 that income surpassed $10,000. Subsequently it underwent violent fluctuations, dependent largely upon moves that seemed to me to be desirable. Income would sometimes run up to pretty high points and might, I think, have been maintained there had that been my choice.

Sometimes for days at a time in the early years of work I would be at the Academy of Medicine Library, disregarding practice, and being out of the office during office hours in the belief that no one was likely to come in. That was a mistake and I missed a case now and then, but people usually find a man if they really want him when there is no particular hurry about it. In those early years of practice a number of doctors in small towns at a distance would send for me knowing that the fee was a secondary matter. Trips requiring an entire day of time and a fee of

twenty-five dollars and expenses for a major surgical operation were often taken. Sometimes I did not get any fee when cases were cared for on the ground of being interesting—or the patients poor.

People do not understand the value of surgical service in a comparative way at all. One day an old acquaintance came in to have a disfiguring mole removed from his face. It evidently had been troubling his mind for years. I froze the mole with ethyl chloride, removing it in a moment. For such a trifling operation for a friend I did not even think of making any charge, but as he started toward the door and asked what my charge would be, I said jokingly, "A thousand dollars." He took it seriously, and asked if I would mind taking his check for five hundred then, and allow him to send the other five hundred a little later. We finally compromised by my letting him pay my ordinary office consultation fee of, at that time, twenty dollars.

Someone may say that he was peculiar. That is really true, of course, or he would not have waited so long a time for the little operation, and yet he was a man of ample means acquired in his vocation as a contractor. The mole had almost certainly interfered with his marrying, as well as being an obstacle in his daily shaving. A fee of one thousand dollars for instantaneous relief for something which had conspicuously caused inferiority feelings for forty years appealed to his state of mind.

Since that time I have learned that "beauty specialists" who deal with vain idle folk, or with stage folk to whom it really is a business matter, sometimes charge and obtain much larger fees for about the same sort of work. Several thousand dollars was the amount reported last year in the newspapers in a case of removal of a chin mole that got into the courts because of an infection. This surely would

not have occurred at the hands of a responsible surgeon; he might have charged less than one hundred dollars for the same operation.

In relation to bills, one will have good patients and mean ones. I did an amputation of the breast for an old lady in one of the small town hospitals to which I had gone on another case. She could pay nothing for services at the time, but expressed her gratitude. Some time afterward when I was again in that town she came to me and asked if she might pay her bill with three chickens which were nicely dressed, neatly packed in a basket, and decorated tastily with daisies. I accepted them with thanks, but heard later that she had been arrested for stealing those chickens. I wish we could count upon all patients being willing to steal in order to pay their doctors' bills!

Three chickens figured in another instance. An old farmer who had a good deal of money because he had saved it, once offered to pay my bill with three prize leghorn fowls. There were tears in his voice when he spoke of giving me these fowls in payment for services. I relieved his distress by suggesting that he had better give me three hundred dollars of the money that he had out at interest. The fowls were really high-class with a market value of perhaps fifty dollars, and a sentimental value almost beyond price in the old farmer's mind. I did not doubt his honesty in confusing sentiment with intrinsic value in this matter; he was about to make a genuine sacrifice in bestowing upon me a product which he had been showing with pride to relatives and visitors on Sunday afternoons. I have shown fowls in the same way myself and know just how he felt.

Now for a case of the other sort. I was very tired, suffering with the grip, and went out to my country place at

Stamford late on a February night, determined to have a good full sleep. It was my intention to plug the telephone bell with cotton, but I was too heavy-eyed and weary to do even that. It was a bitter night, with snow and sleet driving and the wind howling. About midnight I was called up on the telephone by a friend in New York.

"Please come down to the city to see a case of appendicitis right away. The operation has been done, but the boy is dying."

"I am tired and ill, and you had better get another surgeon." (I named several.)

"Two of them have been here and say the boy cannot live more than a few hours."

"If that is the case, there is certainly no need for my coming in. They are authorities."

There was a pause for a moment, and then the doctor said:

"The patient's father is here and says he will pay ten thousand dollars, if necessary, if you will come in."

I decided if he felt so earnestly as that about it, my sleeping farmer would have to be aroused and sent out to a cold barn to hitch the unwilling team on a wild night for a three mile drive to the station. On reaching the city about three o'clock in the morning, I found that the boy's abdomen had been packed with a mass of iodoform gauze. The boy was all but dead from the combination of bowel obstruction due to the packing and from iodoform poisoning. The doctor was instructed to get in his anesthetist immediately, to take out the packing, and to remove adherent iodoform as gently as possible after dissolving it with hot oil—and I then left and went to bed. The patient made a good recovery.

I never take advantage of what a man says when he is

in distress, and instead of sending a bill for ten thousand dollars sent a bill for seventy-five dollars, twenty-five for consultation and fifty dollars for time. The father of the boy refused to pay this bill of seventy-five dollars on the ground that it was exorbitant, because I had done nothing and other doctors did the actual work. The boy's physician sent me his personal check for one hundred dollars, which I of course returned, and I never received a cent for the case.

Sometimes it becomes difficult for young surgeons to know what charge to make for services rendered. They go to older men for advice. One of the younger doctors, Dr. Santangelo, was completing an operation just as I stepped into the door of the operating room. A little later, meeting me in the hallway, he said, "I do not know just how to charge that patient. Please give me advice."

I replied—"You have given him permanent relief from a distressing condition. The work was nicely performed, and he should now be enabled to follow his occupation in good spirit. What is his occupation?"

"He is a burglar. He will pay anything that I ask him to pay but he will have to go out and get it. How much shall I charge?"

Another difficult situation arose when my friend Dr. Brown left his office in a small town one evening and went out on the marsh to look for ducks. He was not a wing shot. Wading silently through reeds and cat-tails he espied half a dozen ducks in a little opening and promptly fired at them. A man jumped up with a shout of pain from the cover behind them. They were decoy ducks. Knowing that the small shot would not injure a man seriously at that distance, Dr. Brown, unrecognized, backed out of the reeds in the gloaming, made his way back to the office

and had just changed his clothes when in came the man to have the shot taken out. To avert suspicion the doctor had to charge him twenty-five dollars.

A man sent a collect telegram from the western part of New York State one day stating that his wife required an operation right away and Dr. Miles Goodyear wished to have me come on the first train. When I arrived after an all-night ride, the doctor was not at the station to meet me but there was a man in a ramshackle farm wagon instead. He took me to a small old farmhouse and then went for Dr. Goodyear, who seemed to be much surprised at my being there. We quickly made arrangements and removed an ovarian tumor with a twisted pedicle. The doctor then took me to the next train and laughed about the telegram, remarking that "If Van were as smart as that all the time he would be better off in the world. He hasn't a dollar to pay you with, not even your railroad fare, to say nothing of charges for time and for the operation." This proved to be the case. It was a twenty-four-hour trip, paying my own expenses and losing New York work for the day.

It was worth while, though, doing something for a man who had such regard for his wife—even though I never received so much as the money for his collect telegram.

Doctors have so many peculiar experiences in regard to the payment of their bills that I have quoted only a few. There is no doubt but that the best time for collecting a bill for surgical work would be in advance, when the responsible party is in fear!

Patients often pass sleepless nights, and sometimes one will commit suicide, because of dread of the ordeal of a surgical operation; but a few days after the work has been done, the convalescent may think: "Pooh! That was nothing!" While understanding the psychology under

these circumstances, I have never cared to take practical advantage of the situation. But I cannot wholly disapprove of surgeons who do. If they really render valuable service and are properly and promptly paid, both parties are pleased. When we wait until the fear group of emotions has entirely faded away, and leave the matter of the bill to the calm reasoning of the patient, he is very apt to include his customary thoughts of protecting his bank account. Gratitude seems at times to belong chemically among the lighter hydrocarbons—it follows their laws of diffusion.

I once had occasion to do a difficult abdominal operation for the son of two good people who had come on from the West. It was a case in which a fairly large fee would have been permissible. The physician of the family said, "Now, these people are perfectly able to pay properly for your services, but the old lady is thrifty, and if you send them a bill for more than one thousand dollars she will make a great outcry and it may hurt me." In accordance with his suggestion, I sent a bill for that amount.

One of the nurses, told me of the circumstances attending the receipt of the bill. The envelope was opened by the careful wife, a little near-sighted, who exclaimed on glancing at the bill, "One Hundred Dollars! My! My! Don't these New York doctors know how to charge!"

The nurse replied, "Perhaps it would be better for you to put on your glasses, for I feel quite sure that you have not read the amount correctly." The bill was paid promptly. The thought of economy had been merely one of commendable fixed habit on the part of a good wife, a prize for any husband.

In one case in which I charged a man two hundred and fifty dollars for an operation for which another cipher

might properly have been added (for saving his wife's life) he paid no attention to my letters for some months, and finally wrote stating that the bill was ridiculous, as I had no reputation or standing warranting any such charge, in fact, no reputation except for overcharging people. This work was for a wife, and the man was individualistic by nature.

If I were to make a choice of operations to which all of my time would be devoted they would be the most difficult and dangerous ones. The other cases would be given to my assistants. Were a choice of patients to be made, I would choose mothers with little children, or Christian Scientists. Were I to make my choice of patients with an eye to their capacity to pay fees, I would choose teachers at our educational institutions who could never pay more than one hundred dollars for any operation at all without suffering deprivation.

Almost any surgeon after years of experience will probably agree with me. Such ideas are not odd. Difficult work gives a surgeon the great pleasure of exercising his acquired skill and judgment. The woman with little children is so determined to live for their sakes that she seems to possess almost supernatural powers for recovery from any sort of illness and no time to be lost. She brings delight to the doctor's heart.

There is no need for adopting a system of fees for physicians or surgeons, any more than there is need for fixing the prices for the paintings of artists. The fee of the physician is determined largely by the finances of the community in which he practices. In one case I charged a thousand dollars for an abdominal operation for which several times that amount would have been proper. The mother of the patient sent me a check for six hundred dol-

lars and asked me to accept that as full payment—less than the amount that she doubtless paid for giving an evening entertainment at her home at times. I was interested in her point of view, as she was perfectly able to pay freely without deprivation, and an extremely understanding sort of woman besides. All of our correspondence was sent to three noted surgeons with the name of the woman erased, so that it could not be traced, and my colleagues' opinions were asked for publication. The correspondence on both sides was published in the *New York Medical Record* some years ago.

The debtor finally paid the balance of the fee, and when inclosing the last check, wrote, "My discussion with you has been a friendly one, and so you will not, I am sure, suspect me of acrimony when I say that my feeling about the present excessive charge of surgeons is a general one, and the reflection of a sentiment that is everywhere one of surprise and dissatisfaction. We do not question your ability, but we feel that you make us pay dear for it."

The case was one in which her son had acute appendicitis with gangrene of the inner coats rapidly on the way to general sloughing, and peritonitis already ablaze. The complete operation was done in ten or twelve minutes through a short incision. I did not see the patient again, and the whole procedure probably seemed like a small matter to the mother.

If we had argued about the case for a day until the peritonitis was out of hand, and if I had employed a great incision necessitating daily calls to the country house for a long time, finally bringing the patient through by a narrow margin, leaving him with a hernia for subsequent operation, the mother would undoubtedly have paid sev-

eral thousand dollars without any question. The avoidance of all such complications, and the saving of a life easily and quickly in a few minutes of actual surgery called out this protest on the part of the mother. She wrote under a genuine conviction that she had been overcharged.

The surgeon's fee is not based upon the length of time during which he uses the knife. It may be based upon some life-saving point in technic which he has thought about when awakened by it at five o'clock in the morning seven years previously in connection with some similar case.

CHAPTER XXIII

THE RED GODS

BY MYSELF, it was possible to make a firm resolve to stick closely to business, but old cronies would drop in for a chat and a smoke in the evening. They drew stirring pictures of ducks coming in to decoys in the reedy marshes at daybreak, partridges lying close to the dog in a hemlock ravine, and woodcock twittering up through bare November alders. At such times, I felt that I had been born for the woods, the rivers, the mountains and the sea. Anyone who wanted New York might have it and all that was in it. My light heart was out of doors. Only my heavy feet remained in town. As Kipling so aptly wrote: "The Red Gods call us out and we must go." Many a day these Gods of the Red Men called, but it was seldom easy to go.

One day in May, when visiting Dr. Charlie Powers who was convalescing from a long illness in an East 24th Street room, I looked out the window and remarked that the newly opened leaves on the Madison Square elms suggested the trout season. Charlie brightened up at once; said that a brook trout would taste mighty good to him. Without a word of my intent, I slipped out of the room, ran to my office for fishing tackle, caught a train to Sprain Brook in Bronxville, and was back again in a couple of hours or so with two brook trout, each about a foot in

length, wrapped in fresh green hellebore leaves with a few cowslips to match the yellow spots. (I confess I used worms for bait, but it was a very special occasion, and there was no time for trying to find which flies would be tempting.) After Charlie moved to Denver, he wrote me that several trout streams were waiting for my next visit.

If we do not lead an ideal life in this world there is no telling when the next chance may come. A wife, children, a country home, a city office, out-of-doors sports, and a liberal profession that would keep me humble, were to my mind the six basic essentials for happiness and satisfaction. Although living on the edge of one city in childhood, in another city during college days, and right in the very heart of a big city in professional life, I have never lived more than sixty minutes away from the home of wild life, even when abroad. In Hamburg, one mild winter morning, I found in the snow the track of a marten near the entrance to my quarters at No. 14 Beim Lübecker Thor. A friend and I followed his neat pairs of footprints for a long distance until we found where he had taken to the trees in his search for squirrels. In the big city of New York, I found plenty of shooting and fishing right at hand, but I felt that I must have a country place in the suburbs, if I were to lead an ideal life.

One day in 1899 Ernest Thompson Seton was at dinner with us in the city. With his poetic enthusiasm he described a beautiful tract of woodland that he had just bought at Cos Cob. He said that there was for sale a larger property near by on the Mianus River, in the eastern part of Greenwich and extending over into Stamford; it was still more beautiful, but it was out of his reach financially. I knew that it must be out of my reach

also, but no harm would be done if I were to neglect business next day and look it over.

There was nearly a mile of rapid rocky trout stream and wild canoe water, granite cliffs giving a glimpse of sparkling waters in Long Island Sound, and the hills and valleys were half-open or heavily forested. There was a chance to make a lake by damming another stream that ran down through friend Seton's place. Ruffed grouse and pheasants burst out from almost underfoot as I quietly walked along the old wood roads.

Day dreams told me that I must have that Merribrooke property some day. The agent pointed out in the path the footprint of a man who had gone over the property the day before who would probably buy it (as he said). This meant that the situation was desperate because I lacked most of the amount required for completing down-payment. The next night was a sleepless one for me, but a day or so later luck came my way. I was called out of town to do a difficult appendix operation for the young son of a gentleman of means. My bill could fairly be enough for that down payment. Instead of sending out my statement on the first of the month as usual it was sent immediately. The check in payment came almost by return mail and with it a letter expressing great gratitude for the service rendered. So Merribrooke was purchased and I did not care who left a footprint in the path after that.

Life at Merribrooke was ideal. Up at 6 A. M.—a run across the dewy lawn in pajamas and then through the ferns and fragrant hemlocks to the swimming pool in the rushing rocky stream. A vireo is singing in the basswood tree; singing, catching an insect, singing, catching an in-

sect, singing, catching an insect. That shall be my keynote for the day, singing while busy.

At the edge of the pool a leopard frog and a spring frog jump from cool moss and go "plunk" into the water. Up they come a moment later cautiously poking their noses and bright eyes out from the protection of crowfoot floating on the surface. They imagine that I cannot see them. They wouldn't take the trouble to plunk into the water at all if they knew how little danger there is at any hands of mine. What are these telltale tracks in the sand? Here's where a muskrat climbed up on the bank for white clover. He ate the blossoms first—just as a boy would begin dinner with pudding. Tracks of a raccoon and of a mink lead under the exposed roots of an elm tree, undermined in some flood. A deer mouse or a shrew may have been surprised by that sinuous sinner of a mink, but I do not know what a big lumbering raccoon would expect to catch under the roots. An old otter track is almost obscured by the hammering from several rains because its owner comes around here only about once in two months on his regular circuit. He always lands at exactly the same spot and goes around the same big stone.

Although the southern boundary of Merribrooke is only eighteen miles from New York City limits we still have there most of the wild life that was present in the days of Indians—deer, red and gray foxes, raccoons, opossums, minks, skunks, weasels, and muskrats.

Here just under water is the sprawling footmark of a great blue heron that stood motionless last night until an unwary dace came swimming along within reach of his lightning stroke. What was that splash? A trout leaped for a caddis fly, but I can only see circles of water chasing each other ashore. Wonder how big he was!—and why is

it that the thought of size is the first thing coming to mind in connection with a trout? I might better think first of his beauty and agility. A group of noisy rascally jays go their way with flashes of blue among the beech branches. Over by my Jeffrey pines a creaky flock of grackles is giving us "the wheel-barrow chorus" as John Burroughs once put it. Burroughs asked me one day when here on a visit with Charlie Hallock why everybody with a country place did not set out such wonderful Jeffrey pines. I replied that it was for the same reason they did not plant persimmons and chinkapins like those that line my driveway. Anyone can have wonderful things about him if he only happens to think of them.

Now for a plunge into trout-stream water—a few strokes to the opposite bank across current, then back again and out. A run back to the house. Breakfast on the porch, wrens chattering staccato vivacity, and a wood thrush singing musically. Nine minutes for the train. Near the driveway on the way out a doe and fawn pause for a moment, heads up and ears at attention. They make a dozen graceful leaps and stop short, looking back; wild things but unafraid.

The unmeasurable glory of a rising sun below ambient early morning clouds has turned dewdrops on the wild rose into shimmering rubies, emeralds, and diamonds. Every day is a new revelation if we begin it among surroundings of beauty.

In the country I can have horses. The automobile does not whinny an early morning greeting to the sound of my coming footsteps nor does it nicker and paw impatiently until it can playfully nip my sleeve. When I am at work in the orchard it does not come up quietly from behind and lay a head on my shoulder. Lord! how one does get to

love a good horse—and even one that is not at all good. For a real chum give me a tough mountain mustang that will allow no one else to saddle him.

Merribrooke is a place where children grow up among surroundings of beauty, but near enough to the big city so that they easily run in to visit friends or go to places of amusement and entertainment. On the train it is just a nice distance for comfortably finishing a pipe, reading the morning and afternoon newspapers, and exchanging news and stories with other commuters. In the springtime, conversation on the train is all literary, i. e., nurserymen's catalogs.

Utilitarian monsters came to steal the water of my stream. Powerful corporations wanted to take my little river away and sell it to cities and to use it for power. For years I fought them off in the courts at an expense that I could not at all afford. The corporations admitted that it was plainly a matter of theft, but they had an excuse, they wanted the water. Americanism puts an impecunious thief in jail but allows a wealthy corporation to carry its theft matters into court while honest men bear the cost of protective litigation. The recent coming of large estate owners into the valley has now taken this burden from my shoulders, and the beautiful Mianus River that was immortalized by Whittier in his "Dark Day in Connecticut" has been spared for the delight of coming generations of Nature lovers.

The stream was named after the Myanos Indians, the last ones of whom talked and traded with great-grandfathers of some of our local folks under white oaks and sycamores that are still standing. When the ground is plowed in a field at Merribrooke we often find arrowheads and other relics. There's an Indian mill near a lit-

tle spring brook where squaws pounded corn with a stone pestle—and a cave not far away among the granite rocks.

From the top of a cliff on the place we glimpse sparkling waters of Long Island Sound in the distance and in a hemlock ravine the river roars a challenge to canoemen when rains have made fast going for them. At the foot of our lawn we skate in winter near where we swim in summer. A lake nestles among rocky barriers and there the wild ducks love to nest. There are great oaks that clash their limbs defiantly in the wintry blast. Maple-leaved viburnum repeats in autumn the shades of its unopened buds of early June, unwilling to allow such daintiness to go without encore although caring not the least bit about display. Mosses, ferns, and azaleas belong to its bonny company.

Our sleeping porch at Merribrooke overlooks the rapid stream that rounds big rocks easily enough but yet making protest that sends out a note of rushing waters. The sound comes up to our porch all night long, all day long—all the time. Why is it that the almost musical monotone gives quieting and satisfying effect rather than any suggestion of impatience? It is because there has been successful compromise; the rocks are to remain while the waters are to go on, and it's a note of generous arrangement that reaches our ears.

It is a symphony in the beauty of the morning. The term "beauty" in my vocabulary relates to that color, sound, form, thought or action which leads out in us the feelings by which we would like to be judged by others as well as by ourselves.

In the autumn, wild ducks that have stopped off a bit on their southward journey fly quacking from the stream at the foot of our lawn when a fox barks just at daylight.

The beautiful rascal doesn't fully approve of daylight. In winter a north wind sifts fine snow through the porch screens and sends it scurrying along over the floor in powdery wisps with changing eddies.

When springtime comes we hear peep frogs jingling merrily and the first song sparrow in a raw March wind cheerfully calling "East—East—Easter dai-sies." Later on, the scouts from a troop of warblers investigate our old apple tree by the porch and flit their dainty shuttles of soft colors back and forth in a weaving of pink blossoms. Sometimes as many as seven or eight of the elfins are in our tree at one time in the early morning. We make unseemly noise by whispering loudly to each other "Keep very still!" and "There's a Blackburnian; oh! he went away. See the palm warbler—and a redstart just came in! —and that chestnut-sided, right over that black poll warbler. Well! Anyway he *was* there! That was a Maryland yellow-throat that you mistook for a summer yellow-bird. You didn't get the right light on him, but a black-throated-blue is on that very same branch. See! Quick! Oh! too bad. He's gone." Poet indeed was he who first gave these little birds the name of warblers because their warbling is done with colors—music of the spectrum in place of voices. The earliest bird up with daylight is the scarlet tanager trying to make us believe that he is a robin when we are only just enough awake to mistake the timbre of his voice for the more modulated song of his bigger friend who appears ten minutes or so later. The tanager's vigorous unrestrained *reveille* gets prompt response from a phoebe bird.

One day when at work in a field and turning over in mind various troubles and complications, I suddenly heard a wood thrush singing. He had been singing to me

for a long time and I had not heard him at all. Immediately that his clear musical "Lib-er-tee, dear-ie," began to sing through my mind, liberty it was that he had brought for me and dearie was he. The whole situation had been changed by a bird and everything could now be looked at in new light cheerfully. The woodthrush had been singing directly to me all the while and yet until that moment I had been ignoring his wonderful presence.

Harmony with Nature would probably be placed among the emotional reactions by a psychologist and yet to my mind the dividing line between emotion and reason is sometimes very, very narrow. I suppose that such harmony is brought about in an artist through an intellectual choice, a preference for form and color in the landscape. To me sound often takes first place in bringing about that sympathy and its triumph lies in fine distinctions—trying to distinguish between the sound of aspen leaves in a breeze and that of rain in the forest, for example, or attempting to locate a distant waterfall while standing where the soughing of wind among dark pine boughs may send me on the wrong trail. On one such occasion I held so still while listening that a fisher loping leisurely along the path put his feet upon my hunting boot amidst the moss, the rest of me being only an old stub so far as he knew. Who else has had a fisher mistake his foot for a stone? He hasn't forgotten.

It is sometimes a bit difficult to distinguish the plaintive note of the phoebe bird from that of a similar call from the chickadee, and yet there enters into the latter a recognizable shade of the camaraderie of cheery Tit who is never without companions. When the blue jay (as rascally as handsome fellows often are) tries to mock someone whom he really holds in deepest respect, the red-

shouldered hawk, we need to wait only a moment before self-esteem obliges Jay to proclaim the real owner of the voice. I cannot distinguish the call of the mourning dove from that of the roadrunner even when both are calling at the same time; but when the mocking bird comes along and tries to imitate both of these birds at once, he makes more of a failure of understanding than I do because of lack of depth on the part of both of us. Who does not have to admit that he is only in the mocking bird's class for tuning in with all Nature?

Everybody must be allowed to have at least one superstition. Mine is to the effect that wild animals in the woods instinctively know whether one who goes among them is carrying a gun heart or a camera heart. In the days when I eagerly hunted for bear, moose, caribou or deer they were seldom found within easy rifle range. They often seemed to have just departed from a locality after leaving abundant signs for my aggravation.

Now with a camera instead of a rifle I can get right among these animals at short range. It seems almost uncanny at times. When a hunter goes through woods or fields hundreds of eyes are turned upon him without his knowledge. Birds, mice and squirrels, to say nothing of larger animals, are looking right at him all day long from their points of safe vantage but he does not know it. Something of his hunting attitude is doubtless passed along the line—a sort of woods telegraph "Look out for a killer coming!" A kind of thought-transference appears to go along the line in exactly the same way when one carries into the woods a sympathetic and kindly interest in all wild life. This is probably not true but it is my superstition. In support of the idea I can bring together as many facts as anybody can usually assemble for the backing of

anything that he likes to believe. Furthermore, some of my friends who get wild creatures about them in friendly attitude near camps or gardens agree that a hunting spirit would quickly send many of the birds and animals out of sight.

In August, 1931, I looked out of the window near my desk to see a number of wild mallards, black ducks and wood ducks playing in the stillwater at the foot of our lawn about fifty yards away. Some of them had come in the night before and others had found barley there in shallow water for some time. When any of us walked down the lawn openly toward them not a single one would actually fly, although the newly arrived ones made a lot of fast wakes on their way to the back of the island. Had I taken my gun and sneaked along the hedge in order to get a pair of them for dinner, the black ducks first of all would have catapulted into the air with an explosion of quacks before I could get within shooting range.

Some naturalist would say that it is all in the nature of my movement—"Every little movement has a meaning." The mallards would actually take food from my little daughter's hands except for the critical moments when her cocker spaniel Kipsie came running up with ears at attention and his motor going very fast. He cannot understand why ducks and rabbits never stop to play with him when his heart is so good.

I would not like to go toward a bee hive while carrying in mind the idea of killing a bee. Bees instinctively know the difference between a friend and an enemy. Anyone who doubts that statement may quickly secure an object lesson—or perhaps more safely ask the very first bee keeper whom he meets.

Perhaps it has really been nothing but luck—my get-

ting so close to big game with a camera—but I have walked as close to a bear while speaking to him as I would to a pet dog—the bear meantime talking back to me with his voice expressing curiosity rather than enmity or fear. It is my feeling that a bear recognizes a friendly voice in the same way it is recognized by a setter.

When carrying a camera, I have been charged by a surprised bull caribou that ten minutes later allowed me to walk up to within fifty feet of him and take a snapshot. According to the textbooks a caribou never does either one of these two things, but at the Camp Fire Club there is always some one to corroborate such a tale, and then in turn to be reminded of something that again requires backing from someone else in the audience. There are few stories of the out-of-doors that have to wander about alone as orphans in that club because wild animals, like our pointers and setters, are quite given to doing surprising things.

Once at dusk I stood in a cart path watching a skunk that was busily turning over leaves, grass and stones in a search for beetles, ants and cutworms. When he got within three or four feet of me I thought it would be unkind to surprise any wild animal at closer range and made a move backward. My little neighbor instantly threw himself into a defensive attitude, looked up at me, relaxed, and then went on with his hunting. Anyone who can gain the confidence of a skunk has made a sort of social triumph.

If the present owner and subsequent owners of Merribrooke can keep intact this natural beauty spot, New York City will have within its environs a treasure that no other great city has.

During most of my years of active professional life, I

had an outlet to the sea, at Broad Channel on Jamaica Bay. I had a sloop there and kept shooting and fishing outfit at Bill Dorman's little Atlantic Hotel. At Broad Channel, the vibrant voices of wild geese and brant still ring at times, in the night. Wild ducks are there and the marsh is so boundless that a stranger bewildered in a fog might easily lose his way among the tall rushes.

Although the head of Jamaica Bay at Fresh Creek Basin is only six miles and a fraction from the 1932 center of New York City, it is thirty-two square miles in area and larger than Manhattan Island. Great dredges are now constructing ship channels and houses are going up on dunes and marshes where until 1930, I could shoot ducks and snipe.

I wonder who will take my decoys and big boots and salty clothes out of the attic of the little hotel where I have deserted them. Duck and snipe will still go to the Bay for a while, but geese and brant have of late been moving over to Great South Bay. A stranger may still lose his life in a fog on Silver Hole Marsh and on my old favorite Jo Co Marsh. If he were caught in a creek bottom at low tide, stuck in the salt muck, he would be overwhelmed by the oncoming flood. Several such casualties have occurred. My inland friends will not know just what that means, but it is a quicksand matter.

We used to have fine fishing at Broad Channel for striped bass, weakfish, bluefish or blackfish, porgies and flounders, with an occasional sheepshead. We could go out at low tide and get long neck clams, little neck clams and razor clams, set a lobster pot, catch soft-shell crabs, or help ourselves to all the oysters that we wanted for a roast. Mrs. Dorman was a wonderful cook for sea food, and we had sea appetites.

The Reaper has played hard and fast with the little coterie of fishermen and hunters who used to gather at Bill Dorman's for the fishing and shooting. Samuel W. Taylor of *The Rider and Driver* and I are the only ones left. Bill is still living but he sold out and is now a harbor pilot, the sort of interesting character whom "everybody knows," yet so modest that reporters have never tapped him for a yarn. He says that "People have changed as much as Jamaica Bay has changed, the good sort all gone."

Sam Taylor and I always chose a bedroom at Bill's where we could listen to the lap-lapping of waves of the inrushing flood tide and inhale the fragrance of bladder wrack and sea lettuce that was spangled with lumpy little snails at low tide. The dock, burdened with its barnacles and algae, trembled beneath us if a strong wind came up in the night. On one such occasion Sam said that we would have to get up and sleep on top of the bedclothes to keep them from blowing off. Oh! the winds all blew on Jamaica Bay.

We were awakened early in the morning by the crooning and hearty laughing of herring gulls, the disembodied staccato call of an invisible meadow-hen, the quacking of black ducks among tall bending rushes, and the clear ringing calls of swift-moving snipe overhead. Mornings were for action with rod, gun or sails after a look aloft for the weather. Evening was the time for enjoyment of beauty on the Bay. In the autumn, small patches of fragile samphire added Sir Edwin Landseer's red spot to mysterious miles and miles of primly rigid spartina grasses in the marshes; over the wide expanse of spartinas, eerie lights played old-gold and fleet-

ing shadow against each other as far as the eye could reach.

I have known men with means sufficient for allowing them to buy a ticket for anywhere and yet they had never lain prone upon a dune and watched the incredible glory of a sunrise over the sea. The very breath of life comes bounding along over boundless waters and then we may look beyond, beyond the sea.

Once, after four rainy November days, my old friend "Prof." Sanborn complained of the depressing, cheerless easterly weather. My reply was that he was one of the poor city sybarites who go about mumbling and grumbling under umbrellas. If he would go over to his apartment and find rubber boots and a slicker I would show him something. The storm was nothing more than an inspiring challenge. I asked him to picture in mind the heavy seas that were at that moment smashing in upon invincible headlands, and the magnificent forces of Nature that were on display.

In thirty-eight minutes from Pennsylvania Station we were at Rockaway. Low-flying clouds were racing rapidly in ragged leaden masses overhead. Slashes of driven rain stung our faces in the gusts. Dark green walls of roaring water were rearing high, hurling themselves in ponderous tumult upon the beach—crashing into alabaster and then rushing and rattling back toward undertow in boisterous minor key. Big white skimmer clams and black square shells of skate's eggs were being stranded in a lace-work of foam on the higher reaches of sand. Salty seaweed tossed high upon the beach was lifted and twisted into a semblance of odd living forms by the easterly gale.

Ruddy cheeks were ours; red blood springing to meet rude assault. Herring gulls on steady, set pinions were

gliding low over the foam of tumbling breakers on the outer bar and spindrift flew from wave summit to wave summit without stopping. Farther out a bunch of sea ducks rode with easy mount on galloping waters. Our conversation was fragmentary.

"Where do those ducks go when winter storms are fierce, and snow and sleet beat all day long and all night long upon their backs?"

"Right where they are now. They scorn shelter and I'd like to be with them! What was that you said about having no time to get away from the City today?"

"I never knew the sea beach was so near. Why does that snipe keep running along ahead of us? Perhaps the poor little chap was wounded and could not fly South along with his flock in September."

"No! That kind doesn't go South in winter. He can fly like a swift arrow shot straight from the bow if he wants to do it. That's a purple sandpiper. He likes to run very fast and to stay here all winter—does just what he wants to do all his life, you know."

A horned lark slipped out of the dune grass almost underfoot and hurried to make safe port under a clump of bayberry bushes not far away. A little flock of redpolls jumped chirping into the wind—widened out—assembled again and dropped down like a flurry of brown leaves whisked into the air for just a moment.

After walking almost up to Lawrence and back, Sanborn said:

"It's getting toward dark and the sea air makes me so hungry that I could eat nails." We went to Bill Dorman's for dinner, and an hour later on Thirty-Fourth Street I suggested that we get a taxi but my friend replied:

"Oh, let's walk uptown. I'm just primed for a good

walk. Things looked all blue for me at two o'clock and now at eight o'clock it has been a bully red letter day—the sort that you seem to find all the time so far as I have ever noticed."

I propose that New York City reserve my beloved Jo Co Marsh and the adjoining Silver Hole Marsh as a sanctuary for birds of the sea and shore, and that the channels between them and their adjacent little islands should be forbidden to visitors. No matter how large the city may become we shall then have a place where the public may observe gulls, terns, herons, ducks, rails, and snipe in their native habitat.

CHAPTER XXIV

THE LONG STILLWATER

IT HAD long been my intention to retire from practice at the age of 65 and then devote gilt-edged coupon years to my life-long interests in horticulture, especially nut-growing, conservation, writing, and the great out-of-doors. But finding myself at that age still young in feeling and physique and the Fourth Era still needing a champion, it seemed morally wrong to unbuckle the harness with my own hands, so I then decided to continue professional work until I had completed fifty years of unbroken activity.

When a man retires from the swift rapids of an active professional life he arrives at a long stillwater, but the banks of that stillwater are so alive, that his days continue to be brimful. Unlike Gibbon who felt desolate upon completing his history, the doctor goes on, for medicine has been collateral to many other interests which were always in the clover field just over the fence. I look forward with almost boyish eagerness to new work and play —time to re-read the old classics and to enjoy choice literature—time to live in the out-of-doors. I shall stalk the moose and bear; not with gun, but with camera. Now I can go when the Red Gods call.

Several years ago I left a determined bass of violent nature and fancy greenish luster under a crawfish bank

in the swift-running waters of the upper Mississippi. I know just where he is this very minute, and I can now go back to him and cast a black raven fly into that white foamy eddy. When corn is in the shock and autumn leaves are falling, Lou Smith and I shall climb over the frosty top rail of a shaky old fence, just before sunrise, to hear a woodcock go twittering up through the alders. I know an inlet for safe anchorage by the sea, where halyards will slap against the mast and the boom will bump, bump, bump while surf is roaring and growling on the outer bar, and brant go filing overhead.

The saddle will creak monotonously on my broncho as I plod hour after hour through scattered mesquite and cacti in the overpowering, awe-inspiring silence of the desert. Once more, I may enjoy the fragrance of sage brush after a rain and see the ocotillos in bloom, with no more hurry than that of a Navajo Indian when he feels like resting. For companionship in the desert, I shall choose a friend for whom hardship is nothing but a diversion.

Then back, perhaps, to Eastern Canada, where all is green when it is not blanketed with snow. From somewhere among the tangled viburnums and blue Clintonia berries, two white-throated sparrows will sing to my companion and to me. Clear tones in clean air. The wind will be moving in the forest, and gold flakes of sunlight will filter through the birches to the mossy logs. A hermit thrush will send tones of spiritual ecstasy ringing through the silence, modulating from minor key to major key and back again, while evening lights fall slanting through the somber tops of pointed spruces. And neither my companion nor I shall speak, for we have learned that "music begins where words end."

And when the grandest of all music, that of storm, is approaching, I shall go forth to meet it, high up among the crags and peaks.

How I love a storm! The wind slowly dies, and an ominous quiet settles down over motionless gray lichens. From out of the west, bold rolling heads of cumulus come marching with martial front into the afternoon's clear blue heaven; volume crowding volume—on they come! The sky darkens and blackens. In massive majestic motion, the heavy clouds sink lower than the crags. Darkness —everywhere. My fingertips tingle with electricity for a moment. Suddenly, a brilliant flash of startling light. A devastating crash makes the solid rock quiver and shake under my feet. Reverberations go bounding along in diapason from canyon to canyon—grand organ pipes of Nature. Thundering echoes roll on in deepest bass. On to distance, distance, distance—lost! A momentary hush of ponderous quiet, as the affrighted air stands still before the next—the impending crash.

Jove's message is delivered and his heralds rapidly disband into vast loose volumes of nimbus, shot through and through with long shafts of crimson and titanic fan rays of deeper red. Bright sunshine lights the evening sky once more and high peaks glow, but soon long shadows steal down to darkening vales for night and deeper dark. 'Tis then I am the mountaineer; and yet at times, when all is still, I seem to hear loud surf—but that is only memory, for one who loves the sea.

FINIS